

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934
(Amendment No. __)

Filed by the Registrant
Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to §240.14a-12

NANOMETRICS INCORPORATED

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement if Other Than the Registrant)

Payment of Filing Fee (Check the appropriate box)

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

1. Title of each class of securities to which transaction applies:

2. Aggregate number of securities to which transaction applies:

3. Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

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8. Filing Party:

9. Date Filed:

NANOMETRICS INCORPORATED
1550 Buckeye Drive
Milpitas, California 95035

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To Be Held On May 22, 2019

Dear Stockholder:

You are cordially invited to attend the Annual Meeting of Stockholders of NANOMETRICS INCORPORATED, a Delaware corporation. The meeting will be held on Wednesday, May 22, 2019, at 9:00 a.m. local time, at our Corporate Headquarters located at 1550 Buckeye Drive, Milpitas, California 95035 for the following purposes:

1. To elect the Board's seven nominees for director to serve until the next annual meeting and until their successors are duly elected and qualified.
2. To approve, on an advisory basis, the compensation of Nanometrics' named executive officers, as disclosed in this proxy statement.
3. To ratify the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 28, 2019.
4. To conduct any other business properly brought before the meeting.

These items of business are more fully described in the Proxy Statement accompanying this Notice.

The record date for the Annual Meeting is March 25, 2019. Only stockholders of record at the close of business on that date may vote at the meeting or any adjournment thereof.

Important Notice Regarding the Availability of Proxy Materials for the Stockholders' Meeting
To Be Held on May 22, 2019, at 1550 Buckeye Drive, Milpitas, California 95035.

The proxy statement and annual report to stockholders
are available at www.proxyvote.com

By Order of the Board of Directors

/s/ Bruce C. Rhine

Bruce C. Rhine

Chairman of the Board of Directors

Milpitas, California

April 3, 2019

You are cordially invited to attend the meeting in person. Whether or not you expect to attend the meeting, please complete, date, sign and return the proxy card that may be mailed to you, or vote over the telephone or the Internet as instructed in these materials, as promptly as possible to ensure your representation at the meeting. Even if you have voted by proxy, you may still vote in person if you attend the meeting. Please note, however, that if your shares are held of record by a broker, bank or other nominee and you wish to vote at the meeting, you must obtain a proxy issued in your name from that record holder.

NANOMETRICS INCORPORATED
2019 ANNUAL MEETING OF STOCKHOLDERS
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NANOMETRICS INCORPORATED
1550 Buckeye Drive
Milpitas, California 95035

PROXY STATEMENT FOR THE 2019 ANNUAL MEETING OF STOCKHOLDERS

May 22, 2019

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

Why did I receive a notice regarding the availability of proxy materials on the Internet?

Pursuant to rules adopted by the Securities and Exchange Commission (the "SEC"), we have elected to provide access to our proxy materials over the Internet. Accordingly, we have sent you a Notice of Internet Availability of Proxy Materials (the "Notice") because the Board of Directors of Nanometrics Incorporated is soliciting your proxy to vote at the 2019 Annual Meeting of Stockholders, including at any adjournments or postponements of the meeting. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice or request to receive a printed set of the proxy materials. Instructions on how to access the proxy materials over the Internet or to request a printed copy may be found in the Notice.

We intend to mail the Notice on or about April 9, 2019, to all stockholders of record entitled to vote at the annual meeting.

Will I receive any other proxy materials by mail?

We may send you a proxy card, along with a second Notice, on or after April 19, 2019.

How do I attend the annual meeting?

The meeting will be held on Wednesday, May 22, 2019, at 9:00 a.m., local time, at our Corporate Headquarters located at 1550 Buckeye Drive, Milpitas, California 95035. Directions to the annual meeting may be found on our website www.nanometrics.com by clicking on "Contact" then "Map & Local Driving Directions." Information on how to vote in person at the annual meeting is discussed below.

Who can vote at the annual meeting?

Only stockholders of record at the close of business on March 25, 2019, will be entitled to vote at the annual meeting. On this record date, there were 24,534,582 shares of common stock outstanding and entitled to vote.

Stockholder of Record: Shares Registered in Your Name

If on March 25, 2019, your shares were registered directly in your name with Nanometrics' transfer agent, Computershare Trust Company, N.A., then you are a stockholder of record. As a stockholder of record, you may vote in person at the meeting or vote by proxy. Whether or not you plan to attend the meeting, we urge you to fill out and return a proxy card (if you have received one), or vote by proxy over the telephone or on the Internet as instructed below, to ensure your vote is counted.

Beneficial Owner Shares Registered in the Name of a Broker or Bank

If on March 25, 2019, your shares were held, not in your name, but rather in an account at a brokerage firm, bank, dealer or other similar organization, then you are the beneficial owner of shares held in "street name" and the Notice is being forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the annual meeting. As a beneficial owner, you have the right to direct your broker or other agent regarding how to vote the shares in your account. You are also invited to attend the annual meeting. However, since you are not the stockholder of record, you may not vote your shares in person at the meeting unless you request and obtain a valid proxy from your broker or other agent.

What am I voting on?

There are three matters scheduled for a vote:

- Election of seven directors;
- Advisory approval of the compensation of Nanometrics' named executive officers, as disclosed in this proxy statement in accordance with SEC rules; and
- Ratification of appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 28, 2019.

What if another matter is properly brought before the meeting?

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on those matters in accordance with their best judgment.

How do I vote?

You may either vote "For" all the nominees to the Board of Directors or you may "Withhold" your vote for any nominee you specify. For each of the other matters to be voted on, you may vote "For" or "Against" or "Abstain" from voting.

The procedures for voting are as follows:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote in person at the annual meeting or vote by proxy over the telephone, or vote by proxy through the Internet, or vote by proxy using a proxy card that you may request or that we may elect to deliver at a later time. Whether or not you plan to attend the meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the meeting and vote in person even if you have already voted by proxy.

- To vote in person, come to the annual meeting and you will receive a ballot when you arrive.
- To vote using a proxy card, you may request a proxy card and simply complete, sign and date the proxy card that may be delivered and return it promptly in the envelope that will be provided with the proxy card. If you return your signed proxy card to us before the annual meeting, we will vote your shares as you direct.
- To vote over the telephone, dial toll-free 1-800-690-6903 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company number and control number from the **Notice**. Your telephone vote must be received by 11:59 p.m., Eastern Time on May 21, 2019, to be counted.
- To vote through the Internet, go to www.proxyvote.com to complete an electronic proxy card. You will be asked to provide the company number and control number from the **Notice**. Your Internet vote must be received by 11:59 p.m., Eastern Time on May 21, 2019, to be counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner of shares registered in the name of your broker, bank, or other agent, you should have received a Notice containing voting instructions from that organization rather than from Nanometrics. Simply follow the voting instructions in the Notice to ensure that your vote is counted. To vote in person at the annual meeting, you must obtain a valid proxy from your broker, bank or another agent. Follow the instructions from your broker or bank included with these proxy materials, or contact your broker or bank to request a proxy form.

Internet proxy voting may be provided to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your Internet access, such as usage charges from Internet access providers and telephone companies.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of common stock you own as of March 25, 2019.

What happens if I do not vote?*Stockholder of Record: Shares Registered in Your Name*

If you are a stockholder of record and do not vote by completing your proxy card, by telephone, through the Internet or in person at the annual meeting, your shares will not be voted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner and do not instruct your broker, bank, or other agent how to vote your shares, the question of whether your broker or nominee will still be able to vote your shares depends on whether the New York Stock Exchange (“NYSE”) deems the particular proposal to be a “routine” matter. Brokers and nominees can use their discretion to vote “uninstructed” shares with respect to matters that are considered to be “routine,” but not with respect to “non-routine” matters. Under the rules and interpretations of the NYSE, “non-routine” matters are matters that may substantially affect the rights or privileges of stockholders, such as mergers, stockholder proposals, elections of directors (even if not contested), executive compensation (including any advisory stockholder votes on executive compensation and on the frequency of stockholder advisory votes on executive compensation), and certain corporate governance proposals, even if management-supported. Accordingly, your broker or nominee may not vote your shares on Proposals 1 or 2 without your instructions but may vote your shares on Proposal 3 even in the absence of your instruction.

What if I return a proxy card or otherwise vote but do not make specific choices?

If you return a signed and dated proxy card or otherwise vote without marking voting selections, your shares will be voted, as applicable, “For” the election of all seven nominees for director, “For” the advisory approval of executive compensation, and “For” the ratification of the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 28, 2019. If any other matter is properly presented at the meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares using his or her best judgment.

Who is paying for this proxy solicitation?

We will pay for the entire cost of soliciting proxies. In addition to these proxy materials, our directors and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners.

What does it mean if I receive more than one Notice?

If you receive more than one Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on the Notices to ensure that all of your shares are voted.

Can I change my vote after submitting my proxy?*Stockholder of Record: Shares Registered in Your Name*

Yes. You can revoke your proxy at any time before the final vote at the meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- You may submit another properly completed proxy card with a later date.
- You may grant a subsequent proxy by telephone or through the Internet.
- You may send a timely written notice that you are revoking your proxy to Nanometrics’ Secretary at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035.
- You may attend the annual meeting and vote in person. Simply attending the meeting will not, by itself, revoke your proxy.

Your most current proxy card or telephone or Internet proxy is the one that is counted.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If your shares are held by your broker or bank as a nominee or agent, you should follow the instructions provided by your broker or bank.

When are stockholder proposals and director nominations due for next year's annual meeting?

To be considered for inclusion in next year's proxy materials, your proposal must be submitted in writing by December 11, 2019, to Nanometrics' Secretary at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035. If the date of our 2020 annual meeting is changed by more than 30 days from the one-year anniversary of the date of the 2019 annual meeting, the proposal must be received a reasonable time before we begin to print and mail our proxy materials. The submission of a stockholder proposal does not guarantee that it will be included in our proxy statement.

If you wish to submit a proposal (including a director nomination) at the meeting that is not to be included in next year's proxy materials, you must do so by December 11, 2019, to Nanometrics' Secretary at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035. If we set the date of our 2020 annual meeting to a date more than 30 days from the one year anniversary of the date of our 2019 annual meeting, then the deadline for receipt of stockholder proposals will be no later than the close of business on the later of 120 calendar days in advance of the 2020 annual meeting or ten days following the date on which we first publicly announce the date of the 2020 annual meeting. You are also advised to review Nanometrics' Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations.

How are votes counted?

Votes will be counted by the inspector of election appointed for the meeting, who will separately count the votes for the proposals as follows:

- Proposal 1, to elect directors, votes "For," "Withhold" and broker non-votes;
- Proposal 2, the advisory vote on executive compensation, votes "For" and "Against," abstentions and broker non-votes; and
- Proposal 3, the ratification of the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 28, 2019, votes "For" and "Against," abstentions and broker non-votes.

What are "broker non-votes"?

As discussed above, when a beneficial owner of shares held in "street name" does not give instructions to the broker or nominee holding the shares as to how to vote on matters deemed by the NYSE to be "non-routine," the broker or nominee cannot vote the shares. These unvoted shares are counted as "broker non-votes."

How many votes are needed to approve each proposal?

For Proposal 1, the election of directors, the seven nominees receiving the most "For" votes from the holders of shares present in person or represented by proxy and entitled to vote on the election of directors will be elected. Only "For" votes will affect the outcome. However, the Board of Directors has adopted a Majority Vote Policy, pursuant to which any director-nominee that is elected but fails to receive more "For" votes than "Withheld" votes must submit his/her resignation for consideration by the Board. The Board will then decide whether to accept the director's resignation. Details of the Majority Vote Policy are set out below under "Corporate Governance - Voting for Directors - Majority Vote Policy."

For Proposal 2, the advisory approval of the compensation of Nanometrics' named executive officers, the proposal will be approved if it receives "For" votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you "Abstain" from voting, it will have the same effect as an "Against" vote. Broker non-votes will have no effect.

For Proposal 3, ratification of the appointment by the Audit Committee of the Board of Directors of PricewaterhouseCoopers LLP as the independent registered public accounting firm of Nanometrics for its fiscal year ending December 28, 2019, the proposal will be approved if it receives "For" votes from the holders of a majority of shares present in person or represented by proxy and entitled to vote on the matter. If you "Abstain" from voting, it will have the same effect as an "Against" vote. We do not expect to have any broker non-votes on this matter, but if we do, they will have no effect.

What is the quorum requirement?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if stockholders holding at least a majority of the outstanding shares entitled to vote are present at the meeting in person or represented by proxy. On the record date, there were 24,534,582 shares outstanding and entitled to vote. Thus, the holders of 12,267,292 shares must be present in person or represented by proxy at the meeting to have a quorum.

Your shares will be counted towards the quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank or other nominee) or if you vote in person at the meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, the holders of a majority of shares present at the meeting in person or represented by proxy may adjourn the meeting to another date.

How can I find out the results of the voting at the annual meeting?

Preliminary voting results will be announced at the annual meeting. In addition, final voting results will be published in a current report on Form 8-K that we expect to file within four business days after the annual meeting. If final voting results are not available to us in time to file a Form 8-K within four business days after the meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to publish the final results.

PROPOSAL 1

ELECTION OF DIRECTORS

At the 2019 annual meeting of stockholders, unless otherwise instructed, the proxy holders will vote the proxies received by them for the nominees named below, each of whom has been nominated by the Board of Directors.

The Board of Directors currently has eight members. Effective at the 2019 annual meeting, the size of the Board of Directors will be reduced to seven members. All current directors are standing for election at the 2019 annual meeting, except for J. Thomas Bentley. The nominees were recommended by the Nominating and Governance Committee of the Board of Directors. All the nominees named below were previously elected as directors by our stockholders.

If the nominees are unable or decline to serve as a director at the time of the annual meeting, the proxies will be voted for any nominee who shall be designated by the present Board to fill the vacancy. We do not have any reason to believe that any of the nominees will be unable or will decline to serve as a director. Directors are elected by a plurality of the votes of the holders of shares present in person or by proxy and entitled to vote on the election of directors. The seven nominees receiving the highest number of affirmative votes will be elected. Pursuant to our Majority Vote Policy, if a nominee for director receives a greater number of "Withhold" votes than "For" votes, that director shall promptly tender to the Nominating and Governance Committee his/her offer of resignation. Within 90 days following certification of the stockholder vote, the Committee shall recommend to the Board the action to be taken with respect to such offer of resignation, and the Board shall consider and act upon the Committee's recommendation. Unless marked otherwise, the proxy holders will vote proxies returned to us for the nominees named below.

Director Nominees

Set forth below is information regarding each of our director nominees, including their ages, as of April 3, 2019, the periods during which they have served as a director, certain information as to principal occupations and directorships held by them in corporations whose shares are publicly registered, and a discussion of the specific experience, qualifications, attributes or skills of each nominee that led the Board to nominate that person as a nominee for director, as of the date of this proxy statement.

Edward J. Brown, Jr., age 61, has served as a director since February 2013. From May 2013 until September 2015, Mr. Brown was the Chief Executive Officer of Cymer Light Source, following the merger of Cymer, Inc. with ASML Holding Ltd., prior to which Mr. Brown served as President and Chief Operating Officer of Cymer, Inc. from September 2005 until May 2013. From 1984 to 2005, Mr. Brown was employed at Applied Materials, Inc., where he held numerous high-level management positions including group vice president and senior advisor to the president, vice president and general manager of the Intel business unit, as well as managing director heading up their largest product division, Global Operations. Prior to Applied Materials Inc., Mr. Brown held key engineering positions at TRW Corporation and Burroughs Corporation. Mr. Brown currently serves as a director of Astrodyne TDI and is a member of SEMI North American Advisory Board.

Mr. Brown received a master's degree in business administration from National University and a bachelor's degree in industrial studies from San Diego State University. Mr. Brown's qualifications to serve as a director include his 40 years of experience in the semiconductor equipment industry and his extensive senior executive management experience.

Robert Deuster, age 68, has served as a director since March 2017. Mr. Deuster served as Chief Executive Officer of Collectors Universe, Inc., a public company that provides authentication and grading services to the global collectibles market from 2012 to 2017, and as a Director from 2012 to 2018. Mr. Deuster served as Chairman and Chief Executive Officer of Newport Corporation, a public company that is a global supplier of laser, optical and motion control products, from May 1996 until his retirement in October 2007. Mr. Deuster served in various senior management positions at Applied Power, Inc. (now Actuant Corporation, a New York Stock Exchange listed company) and General Electric Company's Medical Systems Division. Mr. Deuster served as Director of Ondax Incorporated from 2010 to 2018, as a Director of Symmetry Medical Incorporated from 2014 to 2017, and as a Director of Pico Holdings from 2011 to 2016.

Mr. Deuster received a B.S. in Electrical Engineering from Marquette University in 1973. Mr. Deuster holds a Masters Professional Director Certification from the American College of Corporate Directors, a public company director education and credentialing organization. Mr. Deuster's extensive management experience, including as a CEO of and a senior executive at other public companies, combined with his experience as an independent director of both public and private companies, qualifies him to serve as a member of our Board of Directors.

Pierre-Yves Lesaichere, Ph.D., age 55, joined Nanometrics as President, Chief Executive Officer and Director in November 2017. From January 2012 to February 2017, Dr. Lesaichere was the CEO of Lumileds, an integrated manufacturer

of LED components and Automotive Lighting Lamps. Prior to that, Dr. Lesaichere held senior executive positions at NXP from 2006 to 2012. Before NXP, Dr. Lesaichere was with Philips Semiconductors.

Dr. Lesaichere holds an MBA with a focus on international business and strategy from INSEAD and has MS and Ph.D. degrees in Material Science from the National Polytechnic Institute of Grenoble. The Board determined that due to Dr. Lesaichere's extensive experience in the semiconductor, lighting and LED market space, as well as his role as our President and Chief Executive Officer, Dr. Lesaichere should serve as a member of the Board.

Bruce C. Rhine, age 61, has served as our Chairman of the Board of Directors since July 2007 and as a director since July 2006. From July 2006 to February 2008, Mr. Rhine served as our Chief Strategy Officer. From March 2007 to August 2007, Mr. Rhine served as our Chief Executive Officer. From 2000 to 2006, Mr. Rhine served as Chairman and Chief Executive Officer of Accent Optical Technologies, Inc. (acquired by Nanometrics in July 2006) and as its President from January 2003 to April 2005 and from August 2000 to September 2001. Prior to 2000 Mr. Rhine was an executive at Applied Materials, Lam Research Corporation, Asyst Technologies and Air Products and Chemicals.

Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from The Pennsylvania State University. Mr. Rhine is a member of the National Association of Corporate Directors ("NACD") and the American College of Corporate Directors ("ACCD"). In addition to his experience from his prior senior management service to Nanometrics, Mr. Rhine brings extensive industry knowledge and executive management experience to the Board.

Christopher A. Seams, age 56, has served as a director since August 2015. Mr. Seams served as Chief Executive Officer of Deca Technologies from June 2013 to August 2016, where he was responsible for the overall management of the business. Prior to Deca Technologies, Mr. Seams served as Executive Vice President of sales and marketing at Cypress Semiconductor and held various technical and operational management positions in its manufacturing, development and operations. Prior to joining Cypress in 1990, Mr. Seams worked in process development for Advanced Micro Devices and Philips Research Laboratories. Mr. Seams also serves on the board of directors of Xperi Corporation, and previously served on the board of directors of Tessera Technologies, Inc. until December 2016.

Mr. Seams earned his bachelor's degree in electrical engineering from Texas A&M University and his master's degree in electrical and computer engineering from the University of Texas at Austin. Mr. Seams has a Professional Certificate in Advanced Computer Security from Stanford University. Mr. Seams is a member of NACD and ACCD and is also a senior member of the Institute of Electrical and Electronics Engineers. The Board believes that Mr. Seams brings extensive management, sales and marketing, and engineering experience in the semiconductor industry to his role as a member of the Board.

Timothy J. Stultz, Ph.D., age 71, joined Nanometrics in August 2007 and currently serves as a director. He held the position of President and CEO from August 2007 to November 2017. From June 2003 to August 2007, Dr. Stultz served as the President and Chief Executive Officer and a Director of Imago Scientific Instruments Corporation, a supplier of proprietary 3-D atom probe microscopes to the research materials and microelectronics industries. Prior to Imago, Dr. Stultz served as President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems for the healthcare industry; and Vice President and General Manager of Veeco Instruments' Metrology and Instrumentation Business. Dr. Stultz previously served as a member of the board of directors of Tessera Technologies, Inc. until May 2015.

Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University. In addition to his institutional knowledge as the executive leader of Nanometrics, Dr. Stultz's scientific background and significant senior executive management experience in high tech industries is important to the Board.

Christine A. Tsingos, age 60, has served as a director since May 2014. Ms. Tsingos is currently the Executive Vice President and Chief Financial Officer of Bio-Rad Laboratories although she announced her intentions to retire as of April 30, 2019. In 2002, Ms. Tsingos was named Bio-Rad's Chief Financial Officer; in 2003 she became Vice President, and in 2012 she was named Executive Vice President. Bio-Rad designs, manufactures and distributes a broad range of innovative products and solutions for the global life science and clinical diagnostic markets. Prior to Bio-Rad, Ms. Tsingos held executive positions at Autodesk, The Cooper Companies, and Attest Systems. Ms. Tsingos also serves on the board of directors of Varex Imaging Corporation.

Ms. Tsingos earned her Bachelor of Arts in International Studies from the American University in Washington D.C. and an M.B.A. in International Business from the George Washington University. In 2010, Ms. Tsingos was awarded the prestigious Bay Area CFO of the Year. Ms. Tsingos' qualifications to serve as a director include over 25 years of financial and operational experience.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE IN FAVOR OF EACH NAMED NOMINEE.

CORPORATE GOVERNANCE

Board Structure

Bruce C. Rhine serves as the Chairman of the Board and Pierre-Yves Lesaichere, Ph.D. serves as the President, Chief Executive Officer and a director of Nanometrics. We believe that having a separate Chairman and Chief Executive Officer is appropriate and is consistent with corporate governance best practices. From July 2006 to February 2008, Mr. Rhine served as our Chief Strategy Officer, and from March 2007 to August 2007, Mr. Rhine served as our Chief Executive Officer. Because of his previous roles with Nanometrics, Mr. Rhine is intimately familiar with Nanometrics' business and industry, and very capable of effectively identifying strategic priorities, leading discussions of the Board of Directors and defining Nanometrics' strategic objectives. The Board of Directors determined that Mr. Rhine became an independent member of the Board effective February 2011 under the Nasdaq Listing Rules due to the passage of time subsequent to his previous management role with Nanometrics. Dr. Lesaichere, as the Chief Executive Officer, is the individual selected by the Board of Directors to manage Nanometrics on a day-to-day basis, and his prior experience and direct involvement in Nanometrics' operations allow him to provide valuable insights with respect to strategic planning and the operational requirements to meet Nanometrics' short- and long-term objectives. Nanometrics' independent directors bring experience, oversight and expertise from outside the company and industry.

The Board's Role in Risk Oversight

One of the Board's primary responsibilities is reviewing Nanometrics' strategic plans and objectives, including oversight of the principal risk exposures of the company. The Board does not have a standing risk management committee, but rather administers this oversight function directly through the Board as a whole, as well as through various Board standing committees that address risks inherent in their respective areas of oversight. In particular, the Board is responsible for monitoring and assessing strategic risk exposure, including a determination of the nature and level of risk appropriate for the company. The Audit Committee assists the Board in oversight and monitoring of the legal and financial risks facing Nanometrics, and management's approach to addressing these risks and strategies for risk mitigation. The Audit Committee is also responsible for discussing guidelines and policies governing the process by which management and other persons responsible for risk management, assess and manage Nanometrics' exposure to risk, as well as Nanometrics' major financial risk exposures and the steps management has taken to monitor and control such exposures, based on consultation with Nanometrics' management and independent auditors. Our Compensation Committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking. The Board addresses, at least annually, the principal current and future risk exposures of Nanometrics. The Board receives regular reports from members of senior management on areas of material risk to Nanometrics, including operational, financial, legal and regulatory, strategic and reputation risks.

Board of Directors Meetings and Committees

The full Board of Directors met nine times during the fiscal year ended December 29, 2018. During the fiscal year ended December 29, 2018, all directors attended at least 75% of the aggregate number of meetings of the Board of Directors and meetings of committees on which they served. The standing committees of the Board of Directors include an Audit Committee, a Compensation Committee and a Nominating and Governance Committee.

Directors are encouraged to attend the annual meeting of stockholders. All members of the Board of Directors, then in office, attended the 2018 annual meeting of stockholders.

The Board of Directors has determined that all of its directors meet the independence requirements of the Nasdaq Stock Market, with the exception of Pierre-Yves Lesaichere, Ph.D., due to his position as our President and Chief Executive Officer, and Timothy J. Stultz, Ph.D., due to his position as our President and Chief Executive Officer prior to his retirement from those positions in November 2017.

The Board has a standing Audit Committee, Compensation Committee and Nominating and Governance Committee. The following table provides membership and meeting information for fiscal 2018 for each of the Board standing committees:

Name	Audit	Compensation	Nominating and Governance
Bruce C. Rhine	X		X
J. Thomas Bentley		X	
Edward J. Brown, Jr.		X*	X
Robert G. Deuster	X	X	
Christopher A. Seams	X		X*
Christine A. Tsingos	X*	X	
Total meetings in fiscal 2018	9	6	4

* Chair of the committee. For the Nominating and Governance committee, Mr. Rhine served as Chair until May 22, 2018, and Mr. Seams has served as Chair since May 22, 2018.

Audit Committee

The Audit Committee of the Board of Directors oversees our financial reporting, our internal audit and control functions, the results and scope of the annual audit and quarterly reviews conducted by our independent registered public accounting firm, and our compliance with legal matters that may have a significant impact on our financial reports. In addition, the Audit Committee has the responsibility to consider and recommend the engagement of, and to review and approve fee arrangements with, our independent registered public accounting firm. The Audit Committee also monitors transactions between Nanometrics and our officers and directors for any potential conflicts of interest and assists the Board of Directors in its risk oversight role.

The Board of Directors has determined that each member of our Audit Committee is “independent” within the meaning of the rules of the Securities and Exchange Commission and the Listing Rules of Nasdaq, and has the qualifications or previous experience to be able to read and understand financial statements. Further, the Board of Directors has determined that Ms. Tsingos, Chair of the Audit Committee, qualifies as an “audit committee financial expert,” as such term is used in the Securities and Exchange Commission rules.

The report of the Audit Committee is included at the end of the “Corporate Governance” section of this Proxy Statement. The Board of Directors has adopted a written Audit Committee Charter, which is available on our website at <http://investor.nanometrics.com/corporate-governance>.

Compensation Committee

The Compensation Committee has overall responsibility for evaluating and approving our executive officer compensation, including incentive compensation, benefit, severance, equity-based and other compensation plans, policies and programs. During the 2018 fiscal year, the Compensation Committee reviewed and approved our compensation policies and programs for the chief executive officer, as well as established and had oversight responsibility with regard to the compensation of other executive officers of Nanometrics. The Compensation Committee also has the responsibility to recommend to the Board of Directors a compensation program for non-employee members of the Board.

The Compensation Committee is also responsible for approving the grant of stock options and stock awards to our employees under our equity compensation plans. The Compensation Committee has delegated to Nanometrics’ officers the authority, within certain parameters, to approve the grant of stock options and restricted stock units, or RSUs, with respect to employees and consultants who are not executive officers for purposes of Section 16 of the Exchange Act and hold positions below the level of vice president. The Compensation Committee also assists the Board of Directors in assessing the risks, if any, associated with Nanometrics’ overall compensation policies. Although the Compensation Committee has not done so to date, the Compensation Committee may, to the extent permitted under applicable law, the rules of Nasdaq and the Securities and Exchange Commission, and Nanometrics’ Certificate of Incorporation and Bylaws, form and delegate its authority to a subcommittee, when appropriate, including delegating to a subcommittee consisting solely of independent, non-employee, outside directors to make grants of stock options or RSUs to executive officers and directors, provided that such grants are presented to the full Compensation Committee for approval at the following Compensation Committee meeting.

Each current member of our Compensation Committee is an “outside” director as defined in Section 162(m) of the Internal Revenue Code of 1986, as amended, and a “non-employee” director within the meaning of Rule 16b-3 of the Exchange Act. The Board of Directors has determined that each of the directors serving on our Compensation Committee is “independent” within the meaning of the Listing Rules of Nasdaq as currently in effect.

The Compensation Committee Report is included under the caption “Compensation Committee Report” of this Proxy Statement. The Board of Directors has adopted a written Compensation Committee Charter, which is available on our website at <http://investor.nanometrics.com/corporate-governance>.

Compensation Committee Processes and Procedures. Typically, the Compensation Committee meets at least quarterly, and with greater frequency, if necessary. The Compensation Committee meets regularly in executive session. However, from time to time, various members of management and other employees as well as outside consultants may be invited by the Compensation Committee to make presentations, to provide financial or other background information or advice, or to otherwise participate in Compensation Committee meetings. The Chief Executive Officer may not participate in, or be present during, any deliberations or determinations of the Compensation Committee regarding his compensation. The charter of the Compensation Committee grants the Compensation Committee full access to all books, records, facilities and personnel of Nanometrics, as well as authority to obtain, at the expense of Nanometrics, advice and assistance from internal and external legal, accounting or other advisers and consultants and other external resources that the Compensation Committee considers necessary or appropriate in the performance of its duties. In particular, the Compensation Committee has the authority to retain compensation consultants to assist in its evaluation of executive and director compensation, including the authority to approve the consultant’s reasonable fees and other retention terms.

The Compensation Committee typically makes most of the significant adjustments to annual compensation, determines bonus and equity awards, and approves annual performance objectives, at one or more meetings held during the first quarter of the year. However, the Compensation Committee also considers matters related to individual compensation, such as compensation for new executive hires, as well as high-level strategic issues, such as the efficacy of Nanometrics’ compensation strategy, potential modifications to that strategy and new trends, plans or approaches to compensation, at various meetings throughout the year. Generally, the Compensation Committee’s process comprises two related elements: the determination of compensation levels and the establishment of performance objectives for the current year. As discussed further in the Compensation Discussion and Analysis below, for executives other than the Chief Executive Officer, the Compensation Committee solicits and considers evaluations and recommendations submitted to the Committee by the Chief Executive Officer. In the case of the Chief Executive Officer, the Compensation Committee conducts the evaluation of his performance, which determines any adjustments to his compensation as well as awards to be granted. For all executives, as part of its deliberations, the Compensation Committee may review and consider, as appropriate, materials such as financial reports and projections, operational data, tax and accounting information, tally sheets that set forth the total compensation that may become payable to executives in various hypothetical scenarios, executive and director stock ownership information, company stock performance data, analyses of historical executive compensation levels, current company-wide compensation levels, and recommendations of the Compensation Committee’s compensation consultant, including analyses of executive compensation paid at other companies identified by the consultant. Under its charter, the Compensation Committee may select, or receive advice from, a compensation consultant, legal counsel or other adviser to the Compensation Committee, other than in-house counsel and certain other types of advisers, only after taking into consideration six factors, prescribed by the SEC and Nasdaq, that bear upon the adviser’s independence; however, there is no requirement that any adviser be independent.

During the past fiscal year, the Compensation Committee engaged Compensia, Inc. as its compensation consultant. Compensia has advised the committee for several years and is very familiar with the industry and geographies in which Nanometrics operates. The Compensation Committee requested that Compensia:

- evaluate the efficacy of Nanometrics’ existing compensation strategy and practices in supporting and reinforcing Nanometrics’ long-term strategic goals;
- assist in refining Nanometrics’ compensation strategy and in developing and implementing an executive compensation program to execute that strategy; and
- provide market information to assist Compensation Committee in establishing 2018 executive compensation.

As part of its engagement, the Compensation Committee requested that Compensia develop a comparative group of companies and to perform analyses of competitive performance and compensation levels for that group. The Committee instructed Compensia to select comparator companies similarly sized and in the same or closely related industry to that of Nanometrics using factors such as, but not limited to, revenue size, market capitalization, and number of employees. At the request of the Compensation Committee, Compensia also provided information regarding the labor markets in which Nanometrics competes. Compensia ultimately developed recommendations that were presented to the Compensation Committee for its consideration. Following an active dialogue with Compensia, the Compensation Committee made its independent determinations regarding the compensation of Nanometrics' executive officers. These decisions are discussed in the Compensation Discussion and Analysis section of this Proxy Statement.

Nominating and Governance Committee

The Nominating and Governance Committee assists the Board of Directors in identifying and qualifying candidates to join the Board of Directors and addresses various governance issues. The Nominating and Governance Committee utilizes a variety of methods for identifying and evaluating nominees. Its general policy is to assess the appropriate size and needs of the Board of Directors and whether any vacancies are expected due to retirement or otherwise. In addition, candidates for director nominees are typically reviewed in the context of the current composition of the Board, the operating requirements of Nanometrics, the current needs of the Board, and the long-term interests of stockholders, with the goal of maintaining a balance of knowledge, experience and capability. In the event those vacancies are anticipated, or otherwise arise, the Nominating and Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the Nominating and Governance Committee through its current members, stockholders or other persons. Pursuant to the Nominating and Governance Committee charter, the Committee will consider properly submitted stockholder recommendations for nominations for candidacy. Stockholders who wish to recommend individuals for consideration by the Nominating and Governance Committee to become nominees for election to the Board may do so by delivering a written recommendation to the Nominating and Governance Committee at our principal offices. Nominees may also be submitted directly by stockholders in accordance with Nanometrics' Bylaws as discussed under "Questions and Answers About These Proxy Materials and Voting - When are stockholder proposals and director nominations due for next year's annual meeting?" above. Although the Nominating and Governance Committee does not have a formal policy regarding stockholder recommendations for director nominees because the Board of Directors has an open policy regarding communications with stockholders and has not deemed it necessary to develop a formal policy regarding recommendations for director nominations by stockholders, the Nominating and Governance Committee intends to consider director candidates properly submitted by stockholders under the same criteria as candidates recommended by directors or others.

The Nominating and Governance Committee has no specific minimum qualifications for director candidates. In general, however, persons considered for Board of Directors positions must have demonstrated leadership capabilities, be of sound mind and high moral character, have no personal or financial interest that would conflict or appear to conflict with the interests of Nanometrics and be willing and able to commit the necessary time for Board of Directors and committee service. The Nominating and Governance Committee also intends to consider such factors as possessing relevant expertise upon which to be able to offer advice and guidance to management, demonstrated excellence in his or her field, having the ability to exercise sound business judgment and having the commitment to rigorously represent the long-term interests of Nanometrics' stockholders. However, the Nominating and Governance Committee retains the right to modify these qualifications from time to time.

At the direction of the Board of Directors, the Nominating and Governance Committee also manages the CEO selection process and the critical aspects of the succession planning process. This includes establishing the selection criteria that reflects Nanometrics' business strategies, as well as identifying and evaluating potential candidates for the Board's consideration.

The Nominating and Governance Committee also recommends to the Board of Directors certain guidelines regarding corporate governance and standards regarding the independence of outside directors applicable to Nanometrics and reviews such guidelines and standards and the provisions of the Nominating and Governance Committee charter on a regular basis to confirm that such guidelines, standards and charter remain consistent with sound corporate governance practices and with any legal or regulatory requirements of Nasdaq and the Securities and Exchange Commission. The Nominating and Governance Committee also monitors the Board of Directors, and Nanometrics' compliance with any commitments made to our regulators and changes in corporate governance practices.

The Nominating and Governance Committee does not have a stated policy with regard to diversity of the Board of Directors. However, the Committee believes that Board members should represent a balance of diverse backgrounds and skills, including marketing, finance, manufacturing, engineering, science, and international experience.

The Board of Directors has determined that each of the directors serving on our Nominating and Governance Committee is "independent" within the meaning of the Listing Rules of Nasdaq.

The Board of Directors has adopted a written Nominating and Governance Committee Charter, which is available on our website at <http://investor.nanometrics.com/corporate-governance>.

Voting For Directors – Majority Vote Policy

If a nominee for director in an uncontested election receives a greater number of “Withhold” votes for election than “For” votes (“Majority Withheld Vote”), that director must promptly tender to the Board his or her offer of resignation. If a director receives a Majority Withheld Vote, our Nominating and Governance Committee (or such other committee as the Board may appoint) shall make a recommendation to the Board, which will decide whether to accept or reject the resignation previously tendered by such director.

The Board must act on the tendered resignation, taking into account the recommendation of such committee, within 90 days from the date of the certification of the election results. The director whose resignation is under consideration is not permitted to participate in the recommendation of the committee or deliberations of the Board with respect to his or her resignation. However, if the only directors who did not receive a Majority Withheld Vote in the same election constitute less than a majority of directors, all directors may participate in the action regarding whether to accept the resignation offers. If a director’s resignation is not accepted by the Board, the director will continue to serve until the next annual meeting of shareholders or until his or her successor is duly elected and qualified, or his or her earlier resignation or removal. If a director’s resignation is accepted by the Board, then the Board, in its sole discretion, must fill any resulting vacancy or decrease the size of the Board.

Stockholder Communication Policy

We have established a formal process for stockholders to send communications to the Board of Directors or to individual directors. The names of all directors are available to stockholders in this Proxy Statement. Stockholder communications may be submitted in writing to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary. If we receive any stockholder communication intended for the full Board of Directors or any individual director, we will forward the communication to the full Board of Directors or the individual director, unless the communication is clearly of a marketing nature or is unduly hostile, threatening, illegal or similarly inappropriate.

Insider Trading Policy

We have an insider trading policy that, in addition to prohibiting insider trading, has provisions prohibiting margining the company’s securities, engaging in short sales of securities not owned, and trading in derivative securities.

Risks Associated With Compensation Plans

In 2018, the Compensation Committee determined that our compensation policies and practices for our employees are not reasonably likely to cause employees to take risks that would have a material adverse effect on our company.

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all directors, executive officers and employees. We post our Code of Business Conduct and Ethics on our website at: <http://investor.nanometrics.com/corporate-governance>. If Nanometrics makes any substantive amendments to the Code of Business Conduct and Ethics or grants any waiver from a provision of the Code of Business Conduct and Ethics to any executive officer or director, Nanometrics will promptly disclose the nature of the amendment or waiver on its website.

Stock Ownership Guidelines

We have a stock ownership policy that establishes for our non-employee directors and executive officers, guidelines for minimum levels of stock ownership in the company within five years of their appointment to the Board of Directors, hire date, or promotion, or 2019, whichever is later. The stock ownership guidelines are as follows:

- For non-employee directors, ownership of stock with a value equal to three times the annual Board retainer;
- For our Chief Executive Officer, ownership of stock with a value equal to three times his annual base salary; and
- For each other executive officer, ownership of stock with a value equal to his or her annual base salary.

All of our non-employee directors and executive officers were in compliance with this policy as of March 1, 2019.

Related Person Transaction Policy

Nanometrics has a written policy regarding related party transactions that requires that the Audit Committee review any transaction or series of transactions in excess of \$50,000 in any year between Nanometrics, on the one hand, and an officer, director or 5% or greater stockholder, on the other. Nanometrics' Chief Financial Officer has the responsibility for bringing the facts concerning a proposed related party transaction to the Audit Committee. The policy permits approval only in the event of a finding that the transaction is on terms no less favorable than would have been obtained in an ordinary arms-length transaction with an independent third party.

Report of the Audit Committee of the Board of Directors*

The Audit Committee reviews Nanometrics' financial reporting process on behalf of the Board of Directors. Management has the primary responsibility for establishing and maintaining adequate internal control over financial reporting, for preparing the financial statements and for the reporting process. The Audit Committee members do not serve as professional accountants or auditors, and their functions are not intended to duplicate or to certify the activities of management and the independent registered public accounting firm. Nanometrics' independent auditors are engaged to audit and report on the conformity of our financial statements to accounting principles generally accepted in the United States and the effectiveness of our internal control over financial reporting.

In this context, the Audit Committee reviewed and discussed with management the audited financial statements of Nanometrics for the year ended December 29, 2018. The Audit Committee has discussed with the independent registered public accounting firm the matters required to be discussed by Auditing Standard 1301, Communications with Audit Committees, as adopted by the Public Company Accounting Oversight Board ("PCAOB"). In addition, the Audit Committee has received the written disclosures and the letter from the independent registered public accounting firm required by applicable requirements of the PCAOB regarding the independent registered public accounting firm's communications with the Audit Committee concerning independence, and has discussed with the independent registered public accounting firm its independence.

Based on the foregoing, the Audit Committee recommended to the Board of Directors that our audited financial statements as of and for the year ended December 29, 2018, be included in our Annual Report on Form 10-K for the fiscal year ended December 29, 2018, for filing with the United States Securities and Exchange Commission.

The Audit Committee
Christine A. Tsingos (Chair)
Robert G. Deuster
Bruce C. Rhine
Christopher A. Seams

* The material in this report is not "soliciting material," is not deemed "filed" with the Securities and Exchange Commission and is not to be incorporated by reference in any filing of Nanometrics under the Securities Act or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth beneficial ownership of Nanometrics common stock as of March 25, 2019, by each director, by each of the named executive officers, by all directors and executive officers as a group, and by all persons known to Nanometrics to be the beneficial owners of more than 5% of Nanometrics stock. Unless otherwise indicated, all persons and entities have sole voting and investment power over the shares reported. As of the close of business on March 25, 2019, there were 24,534,582 shares of common stock outstanding.

Name Of Beneficial Owner – Principal Stockholders	Amount and Nature of Beneficial Ownership (1) Shares	
	Number of Shares Beneficially Owned	Percent of Shares Beneficially Owned
Blackrock, Inc. (2)	3,643,493	14.9%
Dimensional Fund Advisors LP (3)	1,589,168	6.5%
The Vanguard Group (4)	1,838,726	7.5%
Name Of Beneficial Owner – Directors And Officers	Number of Shares Beneficially Owned	Percent of Shares Beneficially Owned
J Thomas Bentley (5)	72,612	*
Edward J. Brown Jr.	33,398	*
Robert Deuster	8,435	*
Pierre-Yves Lesaichere, Ph.D.	27,878	*
Bruce C. Rhine (6)	691,191	2.8%
Christopher A. Seams	19,188	*
Timothy J. Stultz, Ph.D. (7)	265,542	1.1%
Christine A. Tsingos (8)	341,367	1.4%
Greg Swyt	191	*
Janet Taylor	13,519	*
Rollin Kocher	16,212	*
James Bamhart	482	*
Jonathan Chou	—	*
All executive officers and directors as a group (13 persons) (9)	1,508,837	6.1%

* Less than 1 percent

- (1) As determined in accordance with Rule 13d-3 under the Securities and Exchange Act of 1934. Information with respect to principal stockholders is obtained from Schedules 13G and 13G/A and except as indicated in the footnotes below, is as of December 31, 2018, and does not reflect changes, if any, since that date.
- (2) According to a Schedule 13G/A filed with the SEC on January 31, 2019, reporting beneficial ownership as of December 31, 2018, BlackRock, Inc. has sole voting power with respect to 3,560,400 of these shares and sole investment power over all these shares. The address of BlackRock, Inc. is 55 East 52nd Street, New York, NY 10055.
- (3) According to a Schedule 13G/A filed with the SEC on February 8, 2019, reporting beneficial ownership as of December 31, 2018, Dimensional Fund Advisors LP has sole voting power with respect to 1,520,282 of these shares and sole investment power over all these shares. All the shares are held by funds or other entities for which Dimensional Fund Advisors LP is an investment adviser. Dimensional Fund Advisors LP disclaims beneficial ownership of such securities. The address of Dimensional Fund Advisors LP is Building One, 6300 Bee Cave Road, Austin, Texas, 78746.
- (4) According to a Schedule 13G/A filed with the SEC on February 11, 2019, reporting beneficial ownership as of December 31, 2018, The Vanguard Group has sole voting power with respect to 46,779 of these shares, shared voting power with respect to 2,113 of these shares, sole investment power with respect to 1,791,638 of these shares, and shared investment power with respect to 47,088 of these shares. The address of The Vanguard Group is 100 Vanguard Blvd., Malvern, PA 19355.
- (5) Mr. Bentley has shared voting and dispositive power over 1,000 shares he gifted to a charitable foundation over which he disclaims beneficial ownership as he has no pecuniary interest in such shares.
- (6) Mr. Rhine has indirect beneficial ownership over 1,428 shares held in a family trust.
- (7) Includes 60,000 shares that may be acquired by exercise of stock options within 60 days of March 1, 2019.
- (8) Includes 314,899 shares held by Bio-Rad Laboratories, of which Ms. Tsingos is Executive Vice President and may be deemed to have shared voting and investment power over these shares.
- (9) Consists of shares held by our executive officers and directors as set forth above, and 18,822 shares held by our other executive officer not listed above.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires our executive officers and directors, and persons who own more than 10% of a registered class of our equity securities, to file reports of ownership and changes in ownership with the Securities and Exchange Commission. Executive officers, directors and greater than 10% stockholders are required by Securities and Exchange Commission regulations to furnish Nanometrics with copies of all Section 16(a) forms that they file. Nanometrics assists our executive officers and directors in the preparation and filing of Forms 4, and generally files the Forms 4 on behalf of our directors and executive officers using the powers of attorney given to certain executive officers of Nanometrics by our executive officers and directors delegating the authority to make the filings. Based solely on our review of the copies of such form received by us or written representations from certain reporting persons, we believe that our executive officers, directors and greater than 10% stockholders have complied with all applicable filing requirements.

EXECUTIVE COMPENSATION

2018 Compensation Discussion and Analysis

INTRODUCTION

This Compensation Discussion and Analysis (CD&A) describes our compensation philosophy, process, plans and practices for the executive officers appearing in the summary compensation table in this proxy statement, whom we refer to as our “named executive officers,” during 2018. Our named executive officers are as follows:

Named Executive Officer	Title
Pierre-Yves Lesaichere, Ph.D.	President, Chief Executive Officer and Director
James Barnhart	Senior Vice President, Operations
Rollin Kocher	Senior Vice President, Sales & Marketing
Janet Taylor	General Counsel
Greg Swyt	Vice President, Finance
Jonathan Chou	Former Chief Financial Officer

Greg Swyt, our Vice President, Finance, was serving as our Principal Financial and Accounting Officer at the beginning of fiscal 2018 up until March 2018, at which time Jonathan Chou joined us as Chief Financial Officer and took over those positions. Mr. Chou departed Nanometrics in June 2018, at which time Mr. Swyt resumed the role as our Principal Financial and Accounting Officer.

In March 2018, James L. Barnhart joined Nanometrics as our Senior Vice President of Operations. In this role, his leadership responsibilities span the manufacturing, supply chain, service and facilities organizations.

Philosophy and Objectives

Nanometrics’ compensation program for our executive officers is intended to enable us to attract, retain and motivate key executive officers and to align their interests with those of the stockholders by tying executive compensation to our short-term and long-term company performance. The Compensation Committee acts on behalf of the Board of Directors and, by extension, on behalf of our stockholders, to establish, implement and continually monitor adherence to our compensation philosophy. The Compensation Committee’s philosophy is to design a compensation package that addresses the need for alignment between the interests of executive officers and stockholders in terms of producing short-term and long-term enhanced stockholder value, as well as achieves retention and motivation through appropriate incentives. This philosophy takes into account both internal equity and external market information relative to our industry and size. The Compensation Committee designs the executive compensation program with the goal of providing total compensation to our executive officers that is competitive and consistent with our compensation philosophy.

The Compensation Committee’s principal objectives are: (a) to develop, recommend and approve compensation packages that are consistent with our philosophy; (b) to link executive compensation to the achievement of our financial, management or other performance goals and; (c) to support our culture and core values by promoting equity among the executive team and maintaining the competitiveness of our overall compensation when compared with external opportunities.

Philosophy and Objectives Applied

Our executive compensation packages for the 2018 fiscal year included three primary components - base salaries, cash bonus award opportunities and long-term equity incentive awards. Other elements of compensation include limited perquisites, other benefits (including retirement (401(k) plan, including matching contributions), health, and welfare benefits), and severance arrangements. The Compensation Committee considered the three primary components individually and, in the aggregate, to assess their competitiveness and effectiveness in retaining our executive officers and motivating them to create short-term and long-term enhanced stockholder value.

In finalizing the compensation of our executive officers in 2018, the Compensation Committee considered input from an independent outside compensation consulting firm, Compensia, our human resources department, and (other than with respect to himself) Dr. Pierre-Yves Lesaichere, our Chief Executive Officer. In the Compensation Committee's review of our executive compensation for the 2018 fiscal year, the Compensation Committee considered publicly available market data for companies that typically include similarly-sized semiconductor and semiconductor capital equipment or similar firms for each executive officer in a like or similar role. In November 2017, for compensation decisions for the 2018 fiscal year, Compensia recommended and the Compensation Committee approved modifications to the group of peer companies for conducting compensation analysis to better reflect our size and business. The Compensation Committee considered the following factors:

- primary focus on semiconductor and semiconductor equipment companies, and secondary focus on hardware companies; revenue between approximately half and two times Nanometrics trailing four quarter revenue at the time; and,
- market capitalization

In evaluating potential peers, the Compensation Committee also reviewed secondary factors such as revenue growth, whether potential peers include Nanometrics as a peer, and whether potential peers are included in the compensation peer groups for Nanometrics selected by leading proxy advisory firms. As a result of this review, five companies that were in our 2017 peer group were removed as they were either acquired or did not meet these criteria, and two new companies meeting these criteria were added.

Our peer group companies considered for compensation for the 2018 fiscal year are listed below:

2018 Fiscal Year Peer Group Companies	
Axcelis Technologies, Inc.	Form Factor, Inc.
Cabot Microelectronics	Photronics
Cohu, Inc.	Rudolph Technologies Inc.
Electro Scientific Industries, Inc.	Veeco Instruments
	Xcerra

Compensia gathered data with respect to base salary, target bonus awards and all equity awards, including stock options, restricted stock units ("RSUs") and performance-based equity. We generally do not gather data regarding employee benefits such as 401(k) or health care coverage normally available to broad groups of employees.

While the market data may identify a certain percentile of the market in which we operate with regard to base salary, bonus or long-term incentives, the Compensation Committee did not target any specific percentile but instead looked at each element as compared to the total targeted cash package and the various components, in light of the desired results, internal equity and the information provided, and then decided if a change to compensation was warranted or not. The Compensation Committee also consulted with Dr. Lesaichere with respect to the appropriate compensation for the executive officers who reported to him, including: Mr. Kocher, our Senior Vice President, Sales and Marketing; and Ms. Taylor, our General Counsel. Dr. Lesaichere reviewed the experience and qualifications, and performance of these executive officers using the elements and framework described under "2018 Executive Compensation Components" below and made recommendations to the Compensation Committee about the structure of the overall compensation program and individual compensation arrangements. This framework provided a guide for the Compensation Committee's deliberations and recommendations regarding proposals for base salary, bonus opportunities and long-term equity incentive awards for each executive position. The Compensation Committee considered those factors that are controllable by management such as expenses and cash, account penetration and long-term stockholder value delivery and others that are less within management control such as revenue, which is subject to the short-term industry cycles and the timing of customer capital spending cycles. The Compensation Committee did not apply formulas or assign specific mathematical weights to the peer group data or any of the factors or elements of compensation discussed above, but rather exercised its business judgment and discretion to make a subjective determination of both the amounts of compensation as well as the distribution of compensation among the various

components, after considering all these measures collectively. The Compensation Committee then came to a conclusion based on the framework outlined above to approve an appropriate compensation package for each executive officer.

As discussed below, Dr. Lesaichere's 2018 compensation was determined in arm's length negotiations with Dr. Lesaichere when he joined our company in November 2017, which included direct input from Compensia. With respect to Mr. Chou, who served as our Chief Financial Officer for a portion of 2018, and Mr. Barnhart, who joined our company in March 2018, their compensation was determined in arms-length negotiations with these executive officers, which included direct input from both Compensia and Dr. Lesaichere. Mr. Swyt was not an executive officer until late December 2017, nor during the time that Mr. Chou was our Chief Financial Officer, and Mr. Swyt's base salary did not change during the time that he was an executive officer.

2018 Executive Compensation Components

For the 2018 fiscal year, the principal components of compensation for our named executive officers were:

- Base salary;
- Bonus; and
- Equity awards.

The Compensation Committee also establishes and reviews retirement and other benefits for our executive officers and considers these benefits to be meaningful to our executive officers as well.

The Compensation Committee has chosen these components because it believes that each supports achievement of one or more of our compensation objectives, and that together they will be effective in achieving such objectives. The use of each compensation component is based on a determination by the Compensation Committee of the importance of each compensation objective in supporting our business and talent strategies. These components are commonly used for executive officers at companies within our peer group and, therefore, the Compensation Committee finds these to be appropriate in our talent retention strategy. The Compensation Committee's determination varies for each executive officer depending on a number of factors, including but not limited to, scope of his or her responsibilities, leadership skills and values, and individual performance. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination after considering all of these measures collectively.

Base Salary

Base salaries serve as the foundation of Nanometrics' compensation program. Other executive compensation elements, including annual short-term cash incentives and long-term equity incentives, the Compensation Committee derives by weighing them against base salary. Nanometrics provides executive officers with base salaries to compensate them for services rendered during the fiscal year and sets base salaries at levels which the Compensation Committee believes will effectively attract and retain top talent. The Compensation Committee determines base salaries for each executive officer based on his or her experience, position and responsibility, as well as the contribution that he or she brings to Nanometrics through performance. During its annual review of base salaries for executive officers, the Compensation Committee primarily considers:

- the salaries of executive officers in similar positions at our peer group companies as discussed in the above section titled "Philosophy and Objectives Applied";
- our financial performance over the past year based upon the ability to achieve Board-approved financial metrics including revenue targets, operating income targets and other operating results metrics; and
- the individual performance of each executive officer, and his or her duties and areas of responsibility, on a subjective basis, which may include, among other things: span of control; ability to influence, manage and produce results that increase the profitability of Nanometrics; and ability to streamline and create efficiencies in the organization.

The Compensation Committee considers salary levels annually as part of our performance review process as well as upon a promotion or other change in job responsibility. The Compensation Committee reviews and determines salaries after reviewing salary data supplied by Compensia, including data regarding our peer comparison group, as well as consideration of the compensation for our executive officers on a company-wide basis, based on their relative duties and responsibilities and the recommendations of our Chief Executive Officer (other than with respect to his compensation) as it relates to the executive officers who report to him. The Compensation Committee also considered comparisons of peer group compensation to peer group performance provided by Compensia. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but

rather exercised its business judgment and discretion to make a subjective determination regarding each executive officer's base salary after considering all of these measures collectively.

For fiscal year 2018, based on all of the data considered, the Compensation Committee exercised its business judgment and discretion to make a subjective determination regarding each executive officer's 2018 base salary (other than Greg Swyt's, as he was not an executive officer at the time his 2018 base salary was determined) as set forth in the table below. Dr. Lesaichere's base salary was not adjusted as he had just recently joined our company in November 2017 and his base salary was designed to compensate him through fiscal 2018. As discussed above, each of Dr. Lesaichere's, Mr. Chou's and Mr. Bamhart's base salaries were determined based on arm's length negotiations with each of these executive officers.

Named Executive Officer	Annual Base Salary Approved for Fiscal Year 2018	Year-Over-Year Percentage Increase Represented by Fiscal Year 2017 Base Salary
Pierre-Yves Lesaichere, Ph.D. President, Chief Executive Officer and Director	\$ 550,000	0.0%
Jonathan Chou Former Chief Financial Officer	\$ 370,000	n/a
Rollin Kocher Senior Vice President, Sales and Marketing	\$ 310,000	6.9%
James Bamhart Senior Vice President, Operations	\$ 320,000	n/a
Janet Taylor General Counsel	\$ 300,000	7.1%

Greg Swyt received a 3% increase in salary, to \$244,000 per year, in April 2018 during the time that he was not an executive officer. This increase was based on market data obtained from an Aon PLC Radford Global Technology survey that takes into account industry, region and annual revenue for the Corporate Controller position at Mr. Swyt's level of responsibility during the time that he was not an executive officer. Mr. Swyt's ongoing job performance was also considered when determining his base compensation rate.

Bonus

The Compensation Committee views cash bonuses as part of its performance-based compensation program designed to align the recipient's interests with our annual goals and objectives and our stockholders' interests. At our 2017 annual meeting of stockholders, the stockholders approved the 2017 Executive Performance Bonus Plan (the "Plan"). Within the parameters of the Plan, the Compensation Committee established the 2018 Executive Performance Bonus Program (the "2018 Bonus Program"). The 2018 Bonus Program is intended to motivate senior executive officers to achieve short-term and long-term corporate objectives relating to the performance of Nanometrics or one of its business units as established by the Compensation Committee of the Board of Directors and to reward them when those objectives are achieved, thereby tying performance to stockholder value. Bonuses would be triggered upon our achievement of target metrics determined by the Compensation Committee.

As part of the 2018 Bonus Program, the Compensation Committee established the following target bonus opportunities based on market data and each executive officer's relative duties and responsibilities for the following named executive officers and, with respect to Dr. Lesaichere, Mr. Chou and Mr. Bamhart, arm's length negotiations with these executive officers in connection with the hiring of these executive officers:

Named Executive Officer (1)	Target Bonus Opportunity (as a % of annual base salary)
Pierre-Yves Lesaichere, Ph.D.	100%
Jonathan Chou	65%
James Bamhart	60%
Rollin Kocher	60%
Janet Taylor	50%

For Dr. Lesaichere, Mr. Bamhart, Mr. Kocher and Ms. Taylor, 100% of the target bonus opportunity under the 2018 Bonus Program was based upon overall company financial performance objectives recommended by Dr. Lesaichere and approved by the

Compensation Committee. Mr. Chou was also eligible to participate in the 2018 Bonus Program but left Nanometrics on June 25, 2018, and so received no bonus.

Mr. Swyt served as our Principal Financial and Accounting Officer until March 5, 2018 when Mr. Chou joined the company. Mr. Chou left Nanometrics on June 25, 2018, at which time Mr. Swyt once again became our Principal Financial and Accounting Officer. Mr. Swyt's target bonus was established in March 2018 at a time when he was not an executive officer and was established at 35% of base salary based on market data obtain from an Aon PLC Radford Global Technology survey that takes into account industry, region and annual revenue for the Corporate Controller and similarly leveled positions during the time that he was not an executive officer.

For Mr. Swyt, the target bonus opportunity was to be earned based on overall company financial performance objectives and individual management objectives. His actual bonus was to be determined by multiplying (a) his target bonus by (b) the product obtained by multiplying the percentage achievement of company performance by the percentage achievement of individual performance. For Mr. Swyt, his individual management objectives related to (i) improved financial process reporting, (ii) accurately implementing new accounting rules and regulations, and (iii) other organization-wide initiatives. In addition, Mr. Swyt received a \$30,000 discretionary bonus in March 2018, after he ceased to be an executive officer, due to his having acted as our Principal Financial Officer for the first part of 2018.

In addition to his performance bonus opportunities and his discretionary bonus, Nanometrics entered into a retention bonus agreement with Mr. Swyt in December 2017 when he became our Principal Financial Officer. The Compensation Committee established the retention bonus amount of \$50,000 based on a retention period from December 2017 through July 2018 (8 months), or 2/3rds of a year. The Compensation Committee determined the amount of \$50,000 as it was approximately 1/3 of Mr. Swyt's base salary during the retention period, which the Compensation Committee determined was a reasonable incentive to reward him for his extra duties and provide an incentive for him to maintain his employment with Nanometrics during this period. In addition, Nanometrics entered into another retention bonus agreement with Mr. Swyt in July 2018, after Mr. Chou had left Nanometrics, in the amount of \$50,000 to be paid if he remained with Nanometrics through February 2019.

The maximum award that an executive officer could receive under the 2018 Bonus Program was two times the target bonus opportunity. Achievement of the bonus opportunity tied to the overall company performance for the 2018 Bonus Program was determined based on annual Revenues and Non-GAAP Operating Margin. The 2018 Bonus Program provided that the company performance would be measured by comparing actual company annual Revenues against target Revenues of \$285 million and actual Non-GAAP Operating Margin against target Non-GAAP Operating Margin of 17.9%.

The company performance factor would be zero when Non-GAAP Operating Margin is less than or equal to 0%. For the 2018 Bonus Program, Non-GAAP Operating Margin was defined as Operating Income/(Loss) as reported in accordance with generally accepted accounting principles in the United States, plus amortization of intangible assets, and any unusual charges, such as restructurings, litigation or acquisition costs, divided by Annual Revenues.

For fiscal year 2018, based on achieved Revenues (\$324.5 million) and Non-GAAP Operating Income (21.6%), the Compensation Committee determined that the performance factor was 1.92% and approved the following bonus amounts for the following named executive officers

Named Executive Officer	Approved Bonus under 2018 Bonus Program	
Pierre-Yves Lesaichere, Ph.D.	\$	1,056,000
Jonathan Chou	\$	—
James Barnhart	\$	368,640
Rollin Kocher	\$	357,120
Janet Taylor	\$	288,000
Greg Swyt (1)	\$	163,973

- (1) Calculated pursuant to the 2018 Bonus Program instead of under Mr. Swyt's performance bonus arrangement but would not have been materially different under his prior performance arrangement.

Long-Term Incentive Compensation

The Compensation Committee believes that equity compensation plans are an essential tool to link the long-term interests of Nanometrics' stockholders and our employees, particularly our executive officers, and serve to motivate executive officers to make

decisions that will, in the long run, optimize returns to our stockholders. Equity compensation plans also enable us to provide an opportunity for increased equity ownership by executive officers, thereby increasing the link between the incentives of our executive officers and the interests of our stockholders and maintain competitive levels of total compensation. Each year the Compensation Committee considers incentive and retention needs, market competitiveness and industry and business conditions to make its subjective determination of the appropriate balance of RSUs, which provide a more predictable value, and performance-based RSUs (“PSUs”), which provide value to the extent pre-defined performance metrics based on relative stock price performance within the industry are achieved for predetermined performance periods. The Compensation Committee considered both the broader market environment and the individual equity profile of each executive officer in awarding all executive officers RSUs for 2018 (other than to Dr. Lesaichere, Mr. Chou and Mr. Bamhart), and awarding Mr. Kocher PSUs for 2018. The Compensation Committee awarded each of Dr. Lesaichere and Mr. Chou a PSU and RSU in 2018, and to Mr. Bamhart an RSU based on the terms of their respective employment agreements, which were negotiated with Dr. Lesaichere in November 2017, and Mr. Chou and Mr. Bamhart in March 2018, respectively.

Restricted Stock Unit Grants (RSUs). All of the executive officers received RSU awards during the 2018 fiscal year. The Compensation Committee believes that RSUs, which increase in value as the market price of our common stock increases, both encourage our executive officers to work toward the longer-term goal of creating stockholder value and provide retention value. RSUs align the interests of our executive officers to the interests of our stockholders because an executive officer that holds RSUs is exposed to the same market risks to which our stockholders are exposed. The Compensation Committee approved RSU award levels for 2018 (other than with respect to Dr. Lesaichere, Mr. Chou and Mr. Bamhart, whose RSU amounts were negotiated as part of their employment agreements) based on an analysis of peer group data related to the size of equity awards as described under our section “Philosophy and Objectives Applied” above. The Compensation Committee did not benchmark to a specific target percentile, but instead considered proposed RSU awards in the context of each executive officer’s cash and total compensation package. In addition, the Compensation Committee considered other factors when determining each executive officer’s RSU award, including: the level of resulting alignment with the interests of our stockholders; such executive officer’s position within the organization and the appropriate level of equity compensation for such position relative to others in the organization’s hierarchy; such executive officer’s contributions to our financial, operational and general performance; our stock price; and the value of such awards based on the company’s currency stock price. The Compensation Committee did not apply formulas or assign specific mathematical weights to any of these factors, but rather exercised its business judgment and discretion to make a subjective determination regarding whether to grant, and the size of grants of, RSUs to each executive officer.

Based on these criteria (and their employment agreements with us with respect to Dr. Lesaichere, Mr. Chou and Mr. Bamhart), the Compensation Committee granted RSUs to acquire the following number of shares to our named executive officers:

<u>Executive Officer</u>	<u>Number of Shares Subject to 2018 RSUs</u>
Pierre-Yves Lesaichere	25,662
Jonathan Chou (1)	34,741
Greg Swyt	3,753
James Bamhart (2)	22,519
Rollin Kocher	19,391
Janet Taylor	16,482

(1) Granted in connection with his joining our company, with a value of \$900,000, the amount determined in arm’s length negotiations with Mr. Chou.

(2) Granted in connection with his joining our company, with a value of \$600,000, the amount determined in arm’s length negotiations with Mr. Bamhart.

Performance Stock Unit Grants (PSUs). The Compensation Committee granted PSUs to our Chief Executive Officer, as well as to our former Chief Financial Officer, Mr. Chou, in connection with his becoming our Chief Financial Officer, and to Mr. Kocher. PSUs are granted with a target amount of shares to vest if the target performance metrics are met, and additional shares may be received, up to a maximum amount that may be received of 150% of the target amount, in the event that the target performance metrics are exceeded.

The Compensation Committee granted PSUs to acquire 38,493 shares (target amount 25,662 shares) of our common stock, having a value of \$695,000, to Dr. Lesaichere in connection pursuant to the terms of his employment agreement with us. The Compensation Committee granted PSUs to acquire 17,370 shares (target amount 11,580 shares) of our common stock, having a value of \$300,000, to Mr. Chou in connection with his joining our company, which amount was determined based on arm’s length

negotiations with Mr. Chou. The Compensation Committee determined to grant PSUs to acquire 7,270 shares (target amount 4,847 shares) of our common stock to Mr. Kocher due to his current and projected performance with the size of the award based on an analysis of peer group data related to the size of equity awards as described under our section “Philosophy and Objectives Applied” above.

The 2018 PSUs granted to Dr. Lesaichere, Mr. Chou and Mr. Kocher are earned based on Nanometrics’ stock price performance relative to the Top 30 companies in the Philadelphia Stock Exchange Semiconductor Index over a one, two and three-year performance period. To earn the target number of shares, Nanometrics’ stock price performance must be at the 50th percentile of the Index; for stock price performance at or above the 75th percentile, the recipient earns 150% of the target shares (maximum payout is 150% of target). If Nanometrics’ stock price performance for any period is negative, the number of shares earned is capped at target, regardless of performance relative to the Index.

Our Compensation Committee grants equity awards under our 2005 Equity Incentive Plan to the executive officers and other employees as incentive compensation. The Compensation Committee meeting schedule is determined several months in advance, and, therefore, proximity of any award date to a material news announcement or a change in our stock price, if any, is coincidental. We do not backdate equity awards or make equity awards retroactively. In addition, we do not coordinate our equity grants to precede announcements of favorable information or follow announcements of unfavorable information. Equity awards are priced using the thirty-day average closing market price as of the Compensation Committee approval

Compensation Arrangements with Dr. Lesaichere

On November 8, 2017, our Board appointed Dr. Pierre-Yves Lesaichere as a director and as our new President and Chief Executive Officer, which appointment became effective on November 27, 2017. In connection with Dr. Lesaichere’s appointment as our President and Chief Executive Officer, the Compensation Committee of Nanometrics approved the compensation terms for Dr. Lesaichere, namely: (1) a base salary of \$550,000 per year, and a target bonus for 2017 and 2018 of \$550,000 for each year (prorated for period of service for 2017) with actual bonus to be determined based on performance; (2) an RSU grant to acquire shares of Nanometrics common stock having a value of \$1.625 million (but no more than 62,500 underlying shares), vesting with respect to 1/3 of the shares each year for three years, subject to accelerated vesting in the event Nanometrics terminates Dr. Lesaichere’s employment without “cause” or Dr. Lesaichere resigns for “good reason” within two years of employment; (3) a PSU grant to acquire shares of Nanometrics common stock having a value of \$1.625 million vesting with respect to 2/3 of the shares on the second anniversary of grant and the rest on the third anniversary of grant, subject to meeting specified stock price performance metrics and Dr. Lesaichere’s continued service with Nanometrics; (4) annual RSU and PSU grants commencing in 2018, each vesting over three years (subject to meeting performance criteria for the PSU grant), each with a value of each of \$625,000; and (5) a sign-on bonus of \$100,000. In addition, the Compensation Committee approved entering into a General Severance Benefits and Change in Control Severance Benefits Agreement with Dr. Lesaichere, as describe under the caption “Employment Contracts and Termination of Employment and Change-in-Control Arrangements.” The terms of Dr. Lesaichere compensation were determined by the Compensation Committee in arms-length negotiations with Dr. Lesaichere as well as a market analysis of Nanometrics’ peers performed by Compensia.

Other Elements of Compensation

All Nanometrics employees in the United States, including our executive officers, are eligible to participate in our 401(k) plan, medical, dental and vision insurance, employee stock purchase plan, as well as our life and disability insurance policy. Nanometrics’ 401(k) Plan and other generally available benefits programs allow us to remain competitive for employee talent, and we believe that the availability of these benefits programs generally enhances employee productivity and loyalty to Nanometrics. The main objectives of Nanometrics’ benefits programs are to give employees access to quality healthcare, financial protection from unforeseen events, assistance in achieving retirement financial goals, and enhanced health and productivity, all in full compliance with applicable legal requirements. These generally available benefits typically do not specifically factor into decisions regarding an individual executive officer’s total compensation or equity award package.

Perquisites

Nanometrics provides certain executive officers with a limited number of perquisites that the Compensation Committee believes are reasonable and consistent with our overall compensation program. Although the Compensation Committee seeks the advice of the human resources department on general market competitiveness for these benefits, it does not use a formal benchmarking process. The aggregate incremental costs to Nanometrics of these perquisites are included in the Summary Compensation Table in the “All Other Compensation” column. Dr. Lesaichere received a car allowance. All executive officers (other than Greg Swyt) are eligible to participate in an Executive Healthcare Reimbursement plan that provides for reimbursement of usual and customary costs that may not

be covered under the medical, dental and eye care plans available to all other Nanometrics employees; actual amounts reimbursed are included in the Summary Compensation Table as “All Other Compensation.”

Severance Benefits

The Compensation Committee considers maintaining a stable and effective management team to be essential to protecting and enhancing the best interests of Nanometrics and its stockholders. Accordingly, the Compensation Committee has taken steps to encourage the continued attention, dedication and continuity of members of our management to their assigned duties without the distraction that may arise from the potential termination of employment. Specifically, we have entered into agreements with our executive officers (other than Greg Swyt) providing for severance payments and benefits, consisting of cash severance and continued health care benefits upon a termination of employment without cause or resignation for good reason and, if the termination of employment is in connection with a “change in control” of Nanometrics, accelerated vesting of equity awards, all as described in greater detail below in the section titled “Employment Contracts and Termination of Employment and Change-in-Control Arrangements.”

When entering into these agreements, the Compensation Committee analyzed data and suggestions from Compensia as well as our human resources department. The Compensation Committee then exercised its business judgment and discretion to make a subjective determination after considering this information.

After considering industry practices, the Compensation Committee determined that our severance and benefits agreements are necessary and appropriate in substance and scope to provide competitive compensation to the types of individuals that Nanometrics desires to attract, hire and retain. The Compensation Committee also believes that these agreements are consistent with our overall compensation philosophy. The Compensation Committee periodically monitors industry practice in this area to ensure that these agreements remain consistent with industry practice and our overall compensation philosophy of offering competitive compensation to preserve our ability to attract and retain key executive officers.

Tax and Accounting

As part of its role, the Compensation Committee reviews and considers both tax and accounting related implications as they apply and as they evolve.

As part of its role, prior to 2018 the Compensation Committee reviewed and considered the deductibility of executive compensation under Section 162(m) of the Internal Revenue Code, which prior to our fiscal year 2018 provided that we may deduct compensation of more than \$1,000,000 that is paid to certain executive officers if certain exemption requirements are met. However, for our fiscal year 2018 and after, this availability is generally no longer available, subject to certain “grandfathering” provisions. To maintain flexibility in compensating our executive officers in a manner that promotes varying corporate goals, the Compensation Committee has not adopted a policy that all compensation must be deductible.

Section 4999 and Section 280G of the Internal Revenue Code provide that executive officers could be subject to additional taxes if they receive payments or benefits that exceed certain limits in connection with a change in control of Nanometrics and that Nanometrics could lose an income tax deduction for such payments. We have not provided any executive officer with a tax “gross up” or other reimbursement for tax amounts the executive officer might be required to pay under Section 4999 or Section 280G of the Internal Revenue Code as the Compensation Committee determined that this was not consistent with best practices.

Section 409A of the Internal Revenue Code imposes additional taxes and interest on underpayments in the event that an executive officer defers compensation under a compensation plan that does not meet the requirements of Section 409A. We believe that we are operating in good faith compliance with Section 409A and have structured our compensation and benefits programs and individual arrangements in a manner intended to comply with the requirements thereof.

Results of Shareholder Advisory Votes to Approve Executive Compensation

At our 2014, 2015, 2016, 2017 and 2018 annual meetings of stockholders, we requested our stockholders to approve, on an advisory (non-binding) basis, the compensation paid to our executive officers as reported in the proxy statements for those annual meetings. Our stockholders expressed substantial support for our executive compensation, with approximately, 96.1%, 95.1%, 92.7%, 94.5%, and 96.3%, respectively, of the shares present and entitled to vote voting for approval of the “say-on-pay” advisory vote approving our executive compensation. Because of the high level of support expressed by our stockholders for the executive compensation, the Compensation Committee has continued to apply a similar approach for executive compensation decisions and policies. The next “say-on-pay” advisory vote approving our executive compensation is scheduled for our 2019 annual meeting of stockholders.

Clawback Policy

We have established a clawback policy. This policy provides that in the event of a material restatement of our consolidated financial statements resulting from fraud or intentional misconduct by any Section 16 officer who has either erroneously been awarded or paid a greater amount of incentive compensation than he or she would have received had the financial statements been fairly stated, the Board or its designated committee has the discretion to direct that the company either recoup or cancel payment, though not forced, of all or a portion of the excess of performance-based cash or equity compensation to the Section 16 officer(s). This clawback policy is effective for compensation awarded or paid after implementation of the policy and applies to current Section 16 officers as well as those who terminate after the clawback program has been approved by the Board. The covered period is the three-year period preceding the effective date for which it is determined that a restatement is required.

Summary Compensation

The following table sets forth compensation information for (i) our Chief Executive Officer, (ii) our Vice President, Finance and our former Chief Financial Officer, and (iii) each of our other three highest compensated executive officers during fiscal 2018, all of whom are collectively referred to as the “named executive officers.”

	Summary Compensation Table							Total
	Year	Salary	Bonus	Stock Awards ^{(1),(2)}	Non-Equity Incentive Plan Compensation ⁽³⁾	All Other Compensation		
Pierre-Yves Lesaichere, Ph.D. (4) President, Chief Executive Officer and Director	2018	\$ 550,000	\$ -	\$ 1,311,585	\$ 1,056,000	\$ 19,300	(5)	\$ 2,936,885
	2017	42,308	100,000	2,232,200	52,885	1,200		2,428,593
Jonathan Chou (6) Former Chief Financial Officer	2018	115,269	-	1,193,577	-	203,281	(7)	1,512,127
Greg Swyt (8) Vice President, Finance	2018	242,094	130,000 (9)	159,202	163,973	4,767	(10)	700,036
	2017	235,042	-	67,128	75,400	2,821		380,391
James Barnhart (11) Senior Vice President, Operations	2018	252,308	-	955,256	368,640	6,467	(12)	1,582,671
Rollin Kocher (13) Senior Vice President, Sales and Marketing	2018	309,615	-	630,085	357,120	8,641	(14)	1,305,461
	2017	285,124	-	410,653	247,755	6,363		949,895
	2016	269,909	-	244,156	339,473	4,800		858,338
Janet Taylor General Counsel	2018	299,615	-	436,608	288,000	27,046	(15)	1,051,269
	2017	278,923	-	318,659	122,220	7,992		727,794
	2016	274,500	-	132,300	155,250	7,218		569,268

- (1) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate grant date fair value of equity awards granted for financial statement reporting purposes in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 718. The assumptions used to calculate the value of the restricted stock units ("RSUs") and/or performance stock units ("PSUs") are set forth under Note 12 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for the fiscal year ended December 29, 2018, filed with the SEC on February 25, 2019.
- (2) The amount with respect to PSUs granted in 2018 is based on the probable outcome of the satisfaction of the performance conditions, which was \$646,169 for Dr. Lesaichere, \$177,821 for Mr. Chou, and \$116,417 for Mr. Kocher; the grant date fair value assuming satisfaction of the performance conditions was \$969,254 for Dr. Lesaichere, \$266,731 for Mr. Chou, and \$174,625 for Mr. Kocher. The amount with respect to PSUs in 2017 is based on the probable outcome of the satisfaction of the performance conditions, which was \$607,206 for Dr. Lesaichere and \$104,325 for Mr. Kocher; the grant date fair value assuming satisfaction of the performance conditions was \$1,063,313 for Dr. Lesaichere and \$156,488 for Mr. Kocher. No PSUs were granted to the named executive officers in 2016.
- (3) Amounts reflected for each fiscal year are those earned, but not paid until the following fiscal year, under our executive performance bonus programs.
- (4) Dr. Lesaichere became our President and Chief Executive Officer on November 27, 2017.
- (5) Represents additional compensation as follows: car allowance in the amount of \$14,400 and an employer 401(k) match of \$4,900.
- (6) Mr. Chou served as our Chief Financial Officer from March 5, 2018 to June 25, 2018.
- (7) Represents additional compensation as follows: reimbursements under our Executive Health Care Plan of \$400, an employer 401(k) match of \$1,736, relocation expenses of \$51,145, and severance of \$150,000.

- (8) Mr. Swyt served as our Principal Financial Officer from December 5, 2017 until February 22, 2018 and has served as our Principal Financial Officer since June 26, 2018.
- (9) Represents a \$30,000 discretionary bonus paid to Mr. Swyt in March 2018 due to his acting as our principal financial officer prior to Mr. Chou's employment, a \$50,000 retention bonus paid to Mr. Swyt during 2018 for remaining our employee from December 2017 through July 2018, and a \$50,000 retention bonus earned primarily in 2018 and paid to Mr. Swyt in 2019 for remaining our employee from July 2018 through February 2019 and acting as principal financial officer after Mr. Chou's termination.
- (10) Represents additional compensation as follows: an employer 401(k) match of \$4,767.
- (11) Mr. Barnhart joined Nanometrics in March 2018.
- (12) Represents additional compensation as follows: reimbursements under our Executive Health Care Plan of \$3,809, and an employer 401(k) match of \$2,658.
- (13) Mr. Kocher became an executive officer in September 2016.
- (14) Represent additional compensation as follows: reimbursements under our Executive Health Care Plan of \$3,741, and an employer 401(k) match of \$4,900.
- (15) Represent additional compensation as follows: reimbursements under our Executive Health Care Plan of \$22,146, and an employer 401(k) match of \$4,900.

2018 Grants of Plan-Based Awards

The following table sets forth information with respect to grants of plan-based awards during the 2018 fiscal year that ended December 29, 2018, to each of the named executive officers.

Grants of Plan-Based Awards For Fiscal Year 2018

Name	Grant Date	Estimated future payouts under non-equity incentive plan awards			Estimated future payouts under equity incentive plan awards (1)			All other stock awards (2) Number of Shares of stock or units (#)	Grant date fair value of stock awards (3)
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#)	Maximum (#)		
Pierre-Yves Lesaichere, Ph.D.	11/27/17	—	\$ 550,000	\$ 1,100,000					
	4/26/18				2,566	25,662	38,493		\$ 969,254
	4/26/18							25,662	\$ 665,146
Jonathan Chou	3/5/18	—	\$ 240,500	\$ 481,000					
	3/5/18				1,158	11,580	17,370		\$ 399,510
	3/5/18							34,741	\$ 927,237
Greg Swyt	2/23/18	—	\$ 85,402	\$ 170,805					
	6/1/18							3,753	\$ 159,202
James Barnhart	3/12/18	—	\$ 192,000	\$ 384,000					
	6/1/18							22,519	\$ 955,256
Rollin Kocher	2/23/18	—	\$ 186,000	\$ 372,000					
	2/23/18				485	4,847	7,270		\$ 174,625
	2/23/18							19,391	\$ 513,668
Janet Taylor	2/23/18	—	\$ 150,000	\$ 300,000					
	2/23/18							16,482	\$ 436,608

- (1) Reflects PSU awards under our 2017 Executive Performance Bonus Plan as described under "Compensation Discussion and Analysis". All PSUs awarded in 2018 vest in equal annual installments over a three-year period subject to achievement of certain stock-price performance metrics.
- (2) Reflects RSUs awarded under our 2005 Equity Incentive Plan. All RSUs awarded in 2018 vest in equal annual installments over a three-year period. No stock options were granted to any of our named executive officers during 2018.
- (3) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate grant date fair value of equity awards granted for financial statement reporting purposes, as determined pursuant to ASC Topic 718. The assumptions used to calculate the value of the RSUs and PSUs are set forth under Note 12 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for the

fiscal year ended December 29, 2018, filed with the SEC on February 25, 2019. The amount with respect to PSUs is also based on the probable outcome of the satisfaction of the performance conditions.

Narrative Disclosure to Summary Compensation Table and Grants of Plan-Based Awards Table

See “2018 Compensation Discussion and Analysis” above for a description of the material terms and considerations of compensation paid to our named executive officers.

Our 401(k) savings plan allows employees to contribute up to 100% of their annual compensation to the plan on a pre-tax or after-tax basis, limited to a maximum annual amount as set periodically by the Internal Revenue Service. The plan provides a 20% match by Nanometrics of all employee contributions.

In the 2018 fiscal year, all corporate officers and non-employee directors were eligible to participate in a Nanometrics self-funded Executive Reimbursement Plan (currently administered by Benefit and Risk Management Services). This plan is intended to supplement our basic health plan by reimbursing expenses that are not covered by our health plan. Dr. Lesaichere is also entitled to a car allowance. Attributed costs of the perquisites described above for the named executive officers for the fiscal year ended December 29, 2018, are included in the “Summary Compensation Table.” All such perquisites are taxable to the executive and included as a portion of such executive’s wages.

Outstanding Equity Awards at Fiscal 2018 Year End

The following table sets forth the number of shares covered by stock awards held by each of the named executive officers at the end of the fiscal year, which ended December 29, 2018, other than Mr. Chou, who did not hold any stock awards as of December 29, 2018. None of the named executive officers held any stock options at December 29, 2018.

Name	Grant Date	Stock Awards			
		Number of Shares or Units of Stock That Have Not Vested (1)	Market Value of Shares or Units of Stock That Have Not Vested (2)	Number of Unearned Shares, Units of Stock That Have Not Vested	Market Value of Unearned Shares, Units of Stock That Have Not Vested (2)
Pierre-Yves Lesaichere, Ph.D.	4/26/18			38,493 (3) \$	1,064,331
	11/27/17			62,500 (4) \$	1,728,125
	4/26/18	25,662	\$ 709,554		
	11/27/17	39,653	\$ 1,096,405		
Greg Swyt	6/1/18	3,753	\$ 103,770		
	6/2/17	1,596	\$ 44,129		
	11/23/16	2,741	\$ 75,789		
James Barnhart	6/1/18	22,519	\$ 622,650		
Rollin Kocher	2/23/18			7,270 (3) \$	201,016
	2/8/17			3,900 (5) \$	107,835
	2/23/18	19,391	\$ 536,161		
	2/8/17	7,866	\$ 217,495		
	5/27/16	4,329	\$ 119,697		
Janet Taylor	2/23/18	16,482	\$ 455,727		
	2/8/17	8,183	\$ 226,260		
	2/22/16	3,333	\$ 92,157		

- (1) Restricted stock units that vest annually over three years on each anniversary of the respective award date.
- (2) The closing market price of Nanometrics common stock on December 28, 2018, the last trading day of our 2018 fiscal year, was \$27.65 per share.
- (3) Performance stock units that vest annually, subject to stock performance metrics, over three years on each anniversary of February 23, 2018.

- (4) Performance stock units that vest in two tranches, subject to stock performance metrics, the first after two years and the second after the third year of the anniversary of November 27, 2017.
- (5) Performance stock units that vest annually, subject to stock performance metrics, over three years on each anniversary of February 8, 2017.

Option Exercises and Stock Vested

The following table provides, on an aggregate basis, the value realized upon the vesting of stock awards, by the named executive officers during the 2018 fiscal year that ended December 29, 2018. None of the named executive officers exercised any stock options during the 2018 fiscal year that ended December 29, 2018.

Option Exercises and Stock Vested For Fiscal 2018

Name	Stock Awards	
	Number of Shares Acquired On Vesting	Value Realized on Vesting (1)
Pierre-Yves Lesaichere, Ph.D.	19,827 (2)	\$ 620,783
Jonathan Chou	—	—
Greg Swyt	3,540 (3)	118,497
Jim Barnhart	—	—
Rollin Kocher	11,260 (4)	373,594
Janet Taylor	14,091 (5)	486,579

- (1) The value realized on vesting is calculated by multiplying the number of shares shown in the table by the market value of the shares on the vesting date.
- (2) Consists of 19,827 RSUs released on November 27, 2018, with a fair market value of \$31.31 per share on that date.
- (3) Consists of 798 RSUs released on June 2, 2018, with a fair market value of \$42.42 per share on that date, and 2,742 RSUs released on November 23, 2018, with a fair market value of \$30.87 per share on that date.
- (4) Consists of 617 PSUs released on February 8, 2018, with a fair market value of \$24.54 per share on that date, 3,934 RSUs released on February 8, 2018, with a fair market value of \$24.54 per share on that date, 4,329 RSUs released on May 27, 2018, with a fair market value of \$38.67 per share on that date, and 2,380 RSUs released on May 29, 2018, with a fair market value of \$39.71 per share on that date.
- (5) Consists of 4,092 RSUs released on February 8, 2018, with a fair market value of \$24.54 per share on that date, 3,333 RSUs released on February 22, 2018, with a fair market value of \$26.30 per share on that date, and 6,666 RSUs released on August 28, 2018, with a fair market value of \$44.78 per share on that date.

Employment Contracts and Termination of Employment and Change-in-Control Arrangements

Pierre-Yves Lesaichere, Ph.D.

On November 27, 2017, Dr. Lesaichere became our President and Chief Executive Officer. In connection with Dr. Lesaichere's appointment as President and Chief Executive Officer, we entered into an employment agreement pursuant to which Dr. Lesaichere receives or will receive: (1) a base salary of \$550,000 per year, and had a target bonus for 2017 and 2018 of \$550,000 for each year (prorated for period of service for 2017) with actual bonus to be determined based on performance; (2) a restricted stock unit (RSU) grant to acquire shares of Nanometrics common stock having a value of \$1.625 million (59,480 shares), vesting with respect to 1/3 of the shares each year for three years, subject to accelerated vesting in the event Nanometrics terminates Dr. Lesaichere's employment without "cause" or Dr. Lesaichere resigns for "good reason" within two years of employment; (3) a performance restricted stock unit (PRSU) grant to acquire 62,500 shares of Nanometrics common stock vesting with respect to 2/3 of the shares on the second anniversary of grant and the rest on the third anniversary of grant, subject to meeting specified stock price performance metrics and Dr. Lesaichere's continued service with Nanometrics; (4) annual RSU and PRSU grants commencing in 2018, each vesting over three years (subject to meeting performance criteria for the PRSU grant), each with a value of each of \$625,000; and (5) a sign-on bonus of \$100,000.

In addition, the agreement provides that: (a) in the event Nanometrics terminates Dr. Lesaichere's employment without "cause" or Dr. Lesaichere resigns for "good reason" not within 12 months of a "change of control", Dr. Lesaichere will receive continued base salary for 12 months, a lump sum payment of his target bonus and COBRA health coverage at Nanometrics' expense for 12 months, and accelerated vesting of his initial RSUs granted on his date of hire; and (b) in the event Nanometrics terminates Dr. Lesaichere's employment without "cause" or Dr. Lesaichere resigns for "good reason" within 12 months of a "change of control", Dr. Lesaichere will receive continued base salary for 18 months, a lump sum payment of his target bonus, COBRA health coverage at Nanometrics' expense for 18 months, accelerated vesting of all of his outstanding RSUs, and accelerated vesting of his PRSUs granted in 2017 at target level. In addition, Nanometrics entered into its standard form of indemnification agreement with Dr. Lesaichere.

Jonathan Chou

In connection with Mr. Chou's appointment as Chief Financial Officer in March 2018, we entered into an employment agreement with Mr. Chou that provided for: (1) a base salary of \$370,000 per year, and a target bonus for 2018 of 65% of base salary; (2) a restricted stock unit grant to acquire shares of Nanometrics common stock having a value of \$900,000, vesting with respect to 1/3 of the shares each year for three years; (3) a performance restricted stock unit grant to acquire shares of Nanometrics common stock having a value of \$300,000 vesting with respect to 1/3 of the shares each year for three years, subject to specified stock price performance metrics and Mr. Chou's continued service with Nanometrics; and (4) relocation assistance not to exceed \$35,000.

In addition, Nanometrics and Mr. Chou entered into a General Severance Benefits and Change in Control Severance Benefits Agreement pursuant to which: (a) in the event Nanometrics terminates Mr. Chou's employment without "cause" or Mr. Chou resigns for "good reason" not within 12 months of a "change of control" (each to be defined in the employment agreement), Mr. Chou will receive continued base salary for 12 months, a lump sum payment of his target bonus and COBRA health coverage at Nanometrics' expense for 12 months; and (b) in the event Nanometrics terminates Mr. Chou's employment without "cause" or Mr. Chou resigns for "good reason" within 12 months of a "change of control", Mr. Chou will receive continued base salary for 18 months, a lump sum payment of his target bonus, COBRA health coverage at Nanometrics' expense for 18 months, and accelerated vesting of all of his outstanding equity grants. In addition, Nanometrics entered into its standard form of indemnification agreement with Mr. Chou.

In connection with Mr. Chou's termination in June 2018, we entered into a separation agreement with Mr. Chou that provided for: (1) a lump sum severance payment of \$150,000, and (2) COBRA health coverage at Nanometrics' expense for up to 12 months.

Severance Agreements with Named Executive Officers

Dr. Lesaichere's and Mr. Chou's severance arrangements are discussed above under "-Pierre-Yves Lesaichere, Ph.D.," and "-Jonathan Chou," respectively.

Nanometrics entered into severance benefits and change in control severance benefits agreements (the "Severance Agreements") with Janet Taylor in July 2015, Rollin Kocher in November 2016, and James Bamhart in March 2018. The general severance benefits will become payable under the Severance Agreements in the event of the executive officer's termination without cause or resignation for good reason which occurs other than on or within 12 months following a qualifying change in control event. With respect to Ms. Taylor, the general severance benefits consist of 12 months of base salary continuation and COBRA premium benefits, and with respect to Messrs. Kocher and Bamhart, the general severance benefits consist of six months of base salary continuation and COBRA premium benefits.

The change in control severance benefits will become payable under the severance agreements in the event that (i) a qualifying change in control event occurs and (ii) the executive's termination without cause or resignation for good reason occurs within the period commencing on and ending 12 months following the qualifying change in control event. With respect to Ms. Taylor, Mr. Kocher, and Mr. Bamhart, the change in control severance benefits consist of (i) a lump sum payment of 12 months' base salary and 100% of the annual target bonus, (ii) 12 months of COBRA premium benefits, and (iii) full acceleration of the vesting and exercisability of all then outstanding equity awards, except performance-based incentive awards, will generally apply.

For purposes of the severance agreements, a qualifying change of control event generally includes any of the following events: (i) an acquisition by any person, entity or group of the beneficial ownership of securities of Nanometrics representing more than fifty percent of the total voting power of Nanometrics' then outstanding securities; (ii) a change in a majority of the members constituting the Board within a two year period that is not approved by a majority of the incumbent Board members, (iii) a merger or consolidation involving Nanometrics and, immediately after the consummation of such transaction, the stockholders of Nanometrics immediately prior thereto do not own, directly or indirectly, outstanding voting securities representing more than fifty percent of the combined outstanding voting power of the surviving or resulting entity; and (iv) a sale, lease or other disposition of all or substantially all of the assets of Nanometrics.

Payment of general severance benefits or change in control severance benefits, as applicable, is in all cases conditioned upon the executive officer providing a timely and effective release of claims against Nanometrics and the executive officer's ongoing compliance with the non-competition, non-solicitation and other requirements set forth in the severance agreements.

In addition, under the terms of our 2005 Equity Incentive Plan, in the event of a merger or change in control in which outstanding stock options or restricted stock units held by the named executive officers are not assumed or substituted with stock options or restricted stock units of the surviving company, such awards will vest and become fully exercisable or payable.

Greg Swyt

In June 2018, we and Greg Swyt entered into a Retention Bonus Agreement pursuant to which Mr. Swyt received a retention bonus of \$50,000 as Mr. Swyt remained employed by us and performed his duties and responsibilities in a satisfactory manner, through February 28, 2019.

Termination of Employment and Change-in-Control Potential Payouts

The table below estimates amounts payable upon a separation as if the individuals were separated on December 29, 2018, which was the last day of our 2018 fiscal year. Mr. Chou is not included in the table as his employment with us terminated before the end of fiscal 2018. His actual severance payments are discussed above. Mr. Swyt is not included in this table since we have not entered into a severance agreement with him.

		<u>Not in connection with Change in Control</u>	<u>In Connection with Change in Control</u>
		<u>Termination Without Cause/Good Reason</u>	<u>Termination Without Cause For Good Reason Or Due to Disability or Death</u>
Pierre-Yves Lesaichere, Ph.D.	Severance pay	\$ 550,000	\$ 825,000
	Equity vesting acceleration ⁽¹⁾	1,096,405	2,958,043
	Bonus	550,000	550,000
	Health care benefits continuation	31,434	47,152
		<u>\$ 2,227,839</u>	<u>\$ 4,380,195</u>
James Bamhart	Severance pay	\$ 160,000	\$ 320,000
	Equity vesting acceleration ⁽¹⁾	—	622,650
	Bonus	—	192,000
	Health care benefits continuation	15,717	31,434
	<u>\$ 175,717</u>	<u>\$ 1,166,084</u>	
Rollin Kocher	Severance pay	\$ 155,000	\$ 310,000
	Equity vesting acceleration ⁽¹⁾	—	873,353
	Bonus	—	186,000
	Health care benefits continuation	15,717	31,434
	<u>\$ 170,717</u>	<u>\$ 1,400,787</u>	
Janet Taylor	Severance pay	\$ 300,000	\$ 300,000
	Equity vesting acceleration ⁽¹⁾	—	774,145
	Bonus	—	150,000
	Health care benefits continuation	11,920	11,920
	<u>\$ 311,920</u>	<u>\$ 1,236,065</u>	

(1) Represents the estimated potential incremental value of additional restricted stock units and performance stock units that would have vested for our named executive officers as of December 29, 2018. Accelerated restricted stock unit award value is calculated by multiplying the number of accelerated shares by the closing price of our stock on December 28, 2018, \$27.65 per share. Accelerated performance stock unit award value is calculated by multiplying the number of target level accelerated shares by the closing price of our stock on December 28, 2018, \$27.65 per share.

CEO Pay Ratio

As required by Item 402(u) of Regulation S-K, we are providing the following information about the relationship of the annual total compensation of our median employee and the annual total compensation of Dr. Lesaichere, our Chief Executive Officer (“CEO”). CEO compensation is from the Summary Compensation Table.

Nanometrics chose November 1, 2018, as the date for establishing the employee population used in identifying the median employee and used fiscal 2018 as the measurement period. Nanometrics identified the median employee using a consistently applied compensation measure which consists of annual base salary or wages, overtime pay (if any), and cash bonuses. Regular employees who joined in 2018 and regular employees who were on leave during 2018 were assumed to have worked for the entire year. All U.S. and non-U.S. employees employed as of November 1, 2018, were captured. No cost-of-living adjustments were made.

The annual total compensation of the median employee and the annual total compensation of Dr. Lesaichere were calculated in accordance with the requirements of Item 402(c)(2)(x) of Regulation S-K. Dr. Lesaichere's total compensation in 2018 on an annualized basis was \$2,936,885, and our median employee's annual total compensation in 2018 was \$93,629. As a result, our 2018 CEO to median employee pay ratio was approximately 31:1.

COMPENSATION COMMITTEE REPORT¹

The Compensation Committee has reviewed and discussed with management the Compensation Discussion and Analysis contained in this Proxy Statement. Based on this review and discussion, the Compensation Committee has recommended to the Board of Directors that the Compensation Discussion and Analysis be included in this Proxy Statement and incorporated into Nanometrics Incorporated's Annual Report on Form 10-K for the fiscal year ended December 29, 2018.

The Compensation Committee

Edward J. Brown Jr., Chairman
J. Thomas Bentley
Robert G. Deuster
Christine A. Tsingos

¹ The material in this report is not "soliciting material," is furnished to, but not deemed "filed" with, the Securities and Exchange Commission and is not deemed to be incorporated by reference in any filing of the company under the Securities Act or the Exchange Act, other than the company's Annual Report on Form 10 K, where it shall be deemed to be "furnished," whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

COMPENSATION OF DIRECTORS

During the 2018 fiscal year, non-employee directors received an annual retainer fee of \$60,000. In addition, the Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating and Governance Committee Chairman received an incremental \$30,000, \$20,000, \$20,000 and \$10,000 annual retainer, respectively, for serving in such capacities. Committee members, other than the chairpersons, received an incremental \$10,000 annual retainer for service on the Audit or Compensation Committee and an incremental \$7,500 annual retainer for service on the Nominating and Governance Committee. All retainer fees are paid annually, as of the date of our annual stockholders meeting, and in advance of the provision of services to which the retainer relates.

Non-employee directors are also eligible to participate in our 2005 Equity Incentive Plan, and in fiscal year 2018, each such director received equity incentives, issued in restricted stock units, valued at \$130,000. We calculated the number of such equity incentives using the 30-day average of the closing market price of our stock on the Nasdaq Stock Market as of the date of our annual stockholders meeting. These awards vest on the earlier of the first anniversary date of the grant or the date of the next annual meeting of stockholders.

Any new non-employee director will be eligible to receive restricted stock units valued at \$130,000 pro-rated to reflect the amount of time served before the next annual meeting of stockholders.

Non-employee directors are eligible to participate in Nanometrics' self-funded Executive Reimbursement Plan, which is intended to supplement our basic health plan by reimbursing expenses that are not covered by our health plan. All such reimbursements are considered taxable income to our non-employee directors.

2018 Director Compensation

The following table sets forth information regarding the compensation for each of our non-employee directors for the 2018 fiscal year that ended December 29, 2018. Nanometrics' non-employee director compensation program for the 2018 fiscal year comprised: (a) cash compensation, consisting of annual retainer fees, additional fees for chairing Board committees, and additional

fees for serving as a committee member; and (b) equity compensation, consisting of restricted stock units. Each of these components is detailed below.

Director Compensation Table For Fiscal Year 2018

	Fees Earned or Paid in Cash	Stock Awards (1) (2)	All Other Compensation (3)	Total
Bruce C. Rhine	\$ 110,000	\$ 159,117	\$ 2,486	\$ 271,603
J. Thomas Bentley	70,000	159,117	122	229,239
Edward J. Brown Jr.	87,500	159,117	2,465	249,082
Robert Deuster	80,000	159,117	-	239,117
Christopher Seams	77,500	159,117	2,486	239,103
Timothy J. Stultz, Ph.D.	60,000	159,117	-	219,117
Christine A. Tsingos	90,000	159,117	-	249,117

- (1) On May 22, 2018, each non-employee director received a restricted stock unit award in the amount of 4,134 shares of common stock. All RSUs vest one year from the first anniversary date of the award or the next annual meeting, if earlier. The fair market value for these RSUs was \$159,117, or \$38.49 per share, on the date of the grant. At December 29, 2018, each non-employee director, except Dr. Stultz, held 4,134 unvested restricted stock units. At December 29, 2018, Dr. Stultz had 129,467 outstanding options to purchase shares of common stock and 69,467 unvested restricted stock units.
- (2) The number of shares underlying the 2018 restricted stock award received by each director was calculated by dividing an approved grant date value of \$130,000 by the 30-day average of the closing market price of our stock as of the date of our 2018 annual stockholders' meeting, or \$31.45 per share, (discussed above under "Compensation of Directors"). However, the dollar amounts shown in this column for such awards do not reflect compensation actually received by the named director (i.e., the \$130,000), instead, the amounts shown are the aggregate grant date fair value calculated for financial statement reporting purposes, as determined pursuant to Accounting Standards Codification ("ASC") Topic 718. The assumptions used to calculate the value of awards are set forth under Note 12 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for fiscal 2018 filed with the SEC on February 25, 2019.
- (3) Representing health care reimbursements extended to Directors.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

During the 2018 fiscal year, the Compensation Committee consisted of Edward J. Brown Jr. (Chair), J. Thomas Bentley, Robert G. Deuster and Christine A. Tsingos. None of Nanometrics' executive officers serve as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of Nanometrics' Board or Compensation Committee.

PROPOSAL 2

ADVISORY (NON-BINDING) VOTE ON EXECUTIVE COMPENSATION

At each of the 2011 and 2017 Annual Meetings of Stockholders, the stockholders indicated their preference that Nanometrics solicit a non-binding advisory vote on the compensation of the named executive officers, commonly referred to as a “say-on-pay” vote, every year. The Board of Directors adopted a policy that is consistent with that preference. In accordance with this policy, this year we are again requesting our stockholders to approve an advisory resolution on Nanometrics’ executive compensation as reported in this Proxy Statement, and as required by Section 14A(a)(1) of the Exchange Act. This vote is not intended to address any specific item of compensation, but the overall compensation of our named executive officers and the philosophy, policies and practices described in this Proxy Statement.

As described more fully in the Compensation Discussion and Analysis section and other compensation-related disclosures in the proxy statement, consistent with its compensation philosophy and pay-for-performance principles, Nanometrics’ executive compensation program has been designed to provide competitive compensation packages that enable Nanometrics to attract and retain talented executives, motivate executive officers to achieve Nanometrics’ short- and long-term business strategies and objectives, and align the interests of executives with those of stockholders, and are consistent with current market practices and good corporate governance principles.

We encourage you to read the Compensation Discussion and Analysis, compensation tables and related narrative discussion in this Proxy Statement.

The Compensation Committee and the Board of Directors believe that the policies and procedures articulated in the “Compensation Discussion and Analysis” are effective in achieving our goals and that the compensation of our named executive officers reported in this Proxy Statement has contributed to our recent and long-term success.

In accordance with Section 14A(a)(1) of the Exchange Act, as a matter of good corporate governance, and in accordance with the policy adopted by the Board of Directors to provide an annual “say-on-pay” advisory vote, we are asking stockholders to approve the following advisory resolution at the annual meeting:

RESOLVED, that the stockholders of Nanometrics approve, on an advisory basis, the compensation of Nanometrics’ named executive officers disclosed in the Compensation Discussion and Analysis, the Summary Compensation Table and the related compensation tables, notes and narratives in the Proxy Statement for Nanometrics’ 2019 Annual Meeting of Stockholders.

This advisory, “say-on-pay” resolution is non-binding on Nanometrics, the Compensation Committee and the Board of Directors. Although this resolution is non-binding, the Compensation Committee and the Board of Directors value the opinions that stockholders express in their votes and in any additional dialogue, and will review and consider the outcome of the vote and those opinions when making future compensation decisions.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE “FOR” THE ADVISORY RESOLUTION APPROVING THE COMPANY’S EXECUTIVE COMPENSATION.

PROPOSAL 3
RATIFICATION OF APPOINTMENT OF
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the Board of Directors has appointed PricewaterhouseCoopers LLP as our independent registered public accounting firm to audit the consolidated financial statements of Nanometrics for the fiscal year ending December 28, 2019.

Approval by the stockholders of the selection of the independent registered public accounting firm is not required, but the Audit Committee believes it is desirable as a matter of good corporate governance to submit this matter to the stockholders. If the holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote on the matter at the annual meeting do not ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm for the fiscal year ending December 28, 2019, the Audit Committee will consider whether it should select another independent registered public accounting firm. Representatives of PricewaterhouseCoopers LLP are expected to attend the annual meeting and will have an opportunity to make a statement and respond to appropriate questions from stockholders.

Audit Fees

The following table summarizes the aggregate fees that we paid or expect to pay our independent registered public accounting firm, PricewaterhouseCoopers LLP, for the 2018 and 2017 fiscal years. We did not pay any audit related fees or tax fees to PricewaterhouseCoopers LLP, for the 2018 and 2017 fiscal years.

	<u>Fiscal 2018</u>	<u>Fiscal 2017</u>
Audit Fees (1)	\$ 1,333,197	\$ 1,225,779
All Other Fees (2)	2,700	1,800
Total	<u>\$ 1,335,897</u>	<u>\$ 1,227,579</u>

(1) Fees to PricewaterhouseCoopers LLP in 2018 and 2017 for audit services consist of:

- Audit of our annual financial statements including management's assessment of internal controls over financial reporting;
- Reviews of our quarterly financial statements; and
- Statutory and regulatory audits, consents and other services.

(2) Paid to PricewaterhouseCoopers LLP for accounting research and database tool and disclosure questionnaires.

In considering the nature of the services provided by the independent registered public accounting firm, the Audit Committee determined that such services are compatible with the provision of independent audit services. The Audit Committee discussed these services with the independent registered public accountants and our management to determine that they are permitted under the rules and regulations concerning auditors' independence promulgated by the Securities and Exchange Commission to implement the Sarbanes-Oxley Act of 2002, as well as the American Institute of Certified Public Accountants.

Audit Committee Pre-Approval Policy

Pursuant to our Audit Committee charter, our Audit Committee must pre-approve all audit and permissible non-audit services, and the related fees, provided to us by our independent registered public accounting firm, or subsequently approve permissible non-audit services in those circumstances where a subsequent approval is necessary and permissible under the Exchange Act or the rules of the Securities and Exchange Commission. The policy generally pre-approves specified services in the defined categories of audit services, audit-related services and tax services up to specified amounts. Pre-approval may also be given as part of the Audit Committee's approval of the scope of the engagement of the independent auditor or on an individual, explicit, case-by-case basis before the independent auditor is engaged to provide each service. The pre-approval of services may be delegated to one or more of the Audit Committee's members. Accordingly, the Audit Committee pre-approved all services and fees provided by PricewaterhouseCoopers LLP, during the year ended December 29, 2018, and has concluded that the provision of these services is compatible with the accountants' independence.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT STOCKHOLDERS VOTE "FOR" THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP, AS NANOMETRICS' INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 29, 2018.

EQUITY COMPENSATION PLAN INFORMATION

The following table gives information about the common stock that may be issued under all our existing equity compensation plans as of December 29, 2018.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in first column)
Equity Compensation plans approved by security holders (1)	83,394	\$ 15.80	1,411,835
Equity compensation plans not approved by security holders	—	—	—
Total	83,394	\$ 15.80	1,411,835

(1) Consists of shares issuable under the company's Accent Optical Technologies, Inc. Stock Incentive Plan, 2000 Employee Stock Option Plan, 2000 Director Stock Option Plan, 2003 Employee Stock Purchase Plan and 2005 Equity Incentive Plan ("ESPP"). As of December 29, 2018, a total of 443,694 shares of our common stock remained available for issuance under the ESPP, and up to a maximum of 66,658 shares of our common stock may be purchased in the current purchase period. The shares issuable pursuant to our ESPP are not included in the number of shares to be issued pursuant to rights outstanding and the weighted-average exercise price of such rights as of December 29, 2018, as those numbers are not known. The weighted-average exercise price does not take into account 881,166 shares issuable upon vesting of outstanding awards of restricted stock units and performance-based shares, which have no exercise price.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for Notices of Internet Availability of Proxy Materials or other Annual Meeting materials with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials or other Annual Meeting materials addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially means extra convenience for stockholders and cost savings for companies.

This year, a number of brokers with account holders who are Nanometrics stockholders will be “householding” Nanometrics’ proxy materials. A single Notice of Internet Availability of Proxy Materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate Notice of Internet Availability of Proxy Materials, please notify your broker or Nanometrics. Direct your written request to Investor Relations Department, Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035 or contact Investor Relations at 408-545-6000. Stockholders who currently receive multiple copies of the Notice of Internet Availability of Proxy Materials at their addresses and would like to request “householding” of their communications should contact their brokers.

OTHER MATTERS

The Board of Directors knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment.

BY ORDER OF THE BOARD OF DIRECTORS

/s/ Bruce C. Rhine

Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California
April 3, 2019

A copy of Nanometrics' Annual Report to the Securities and Exchange Commission on Form 10-K for the fiscal year ended December 29, 2018, is available without charge upon written request to: Investor Relations Department, Nanometrics, Incorporated, 1550 Buckeye Drive, Milpitas, California 95035.

NANOMETRICS INCORPORATED
1550 BUCKEYE DRIVE
MILPITAS, CA 95035

VOTE BY INTERNET - www.proxyvote.com

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 p.m. Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS

If you would like to reduce the costs incurred by our company in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions above to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 p.m. Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

E72950-P20180

KEEP THIS PORTION FOR YOUR RECORDS
 DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

NANOMETRICS INCORPORATED		For All	Withhold All	For All Except	To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.
The Board of Directors recommends you vote FOR the following:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
1. Election of Directors					
Nominees					
01) Edward J. Brown, Jr.	05) Christopher A. Seams				
02) Robert Deuster	06) Timothy J. Stultz, Ph.D.				
03) Pierre-Yves Lesaicheme, Ph.D.	07) Christine A. Tsingos				
04) Bruce C. Rhine					
The Board of Directors recommends you vote FOR proposals 2 and 3.					
2.	To approve, on an advisory basis, the compensation of Nanometrics' named executive officers, as disclosed in the proxy statement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	To ratify the appointment of PricewaterhouseCoopers LLP as Nanometrics' independent registered public accounting firm of Nanometrics for its fiscal year ending December 28, 2019.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
NOTE: All directors are up for election and, if elected, will each serve for a term of one year or until his/her respective successor has been duly elected and qualified.					
Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.					
<input type="text"/>		<input type="text"/>		<input type="text"/>	
Signature [PLEASE SIGN WITHIN BOX]		Date		Signature (Joint Owners)	
<input type="text"/>		<input type="text"/>		<input type="text"/>	
Signature [PLEASE SIGN WITHIN BOX]		Date		Signature (Joint Owners)	

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:
The Notice and Proxy Statement and Annual Report are available at www.proxyvote.com.

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**NANOMETRICS INCORPORATED
THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS
ANNUAL MEETING OF STOCKHOLDERS MAY 22, 2019**

The undersigned stockholder(s) of Nanometrics Incorporated, a Delaware corporation, hereby acknowledge(s) receipt of the Notice of Annual Meeting of Stockholders and Proxy Statement, each dated April 3, 2019, and hereby appoint(s) Bruce C. Rhine and Greg Swyt, and each of them, as Proxies and Attorneys-in-Fact, with full power to each of substitution, on behalf and in the name of the undersigned, to represent the undersigned at the Annual Meeting of Stockholders of Nanometrics Incorporated to be held on Wednesday, May 22, 2019, at 9:00 a.m., local time, at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, CA 95035 and at any adjournments thereof, and to vote all shares of common stock which the undersigned is entitled to vote on the matters set forth below. THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" PROPOSALS 1, 2, AND 3.

This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.

Continued and to be signed on reverse side

