

NANOMETRICS INC
Form DEF 14A
April 20, 2010

SCHEDULE 14A

(Rule 14A-101)

INFORMATION REQUIRED IN PROXY STATEMENT

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934

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 under §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.

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1. Amount Previously Paid:

2. Form, Schedule or Registration Statement No.:

3. Filing Party:

4. Date Filed:

NANOMETRICS INCORPORATED

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

TO THE STOCKHOLDERS OF NANOMETRICS INCORPORATED:

NOTICE IS HEREBY GIVEN that the annual meeting of stockholders of Nanometrics Incorporated, a Delaware corporation, will be held on Friday, May 28, 2010, at 9:00 a.m. local time, at the Four Seasons Hotel, 98 San Jacinto Blvd., Austin, Texas 78701. At the annual meeting you will be asked to consider and vote upon the following:

1. A proposal to elect two Class III directors of Nanometrics, each to serve for a term of three years or until his respective successor has been duly elected and qualified.
2. A proposal to ratify the appointment of PricewaterhouseCoopers, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending January 1, 2011.
3. Such other business as may properly come before the annual meeting or any postponements or adjournments thereof.

The foregoing items of business are more fully described in the proxy statement accompanying this notice of annual meeting of stockholders.

Only stockholders of record at the close of business on April 1, 2010 are entitled to notice of and to vote at the annual meeting and any postponements or adjournments thereof. The proxy statement and enclosed form of proxy are first being mailed to the stockholders of record on or about April 16, 2010.

All stockholders are cordially invited to attend the annual meeting in person. However, to ensure representation at the annual meeting, you are urged to mark, sign, date and return the enclosed proxy card as promptly as possible in the postage-prepaid envelope enclosed for that purpose. Any stockholder of record attending the annual meeting may vote in person even if that stockholder previously returned a proxy card for the annual meeting.

BY ORDER OF THE BOARD OF DIRECTORS,

/s/ Bruce C. Rhine

Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California

April 16, 2010

**Important Notice Regarding the Availability of Proxy Materials
for the Annual Meeting of Stockholders to Be Held on May 28, 2010.
This Proxy Statement and the 2010 Annual Report are available at:**

www.nanometrics.com/investor/proxy2010.pdf

NANOMETRICS INCORPORATED

PROXY STATEMENT

INFORMATION CONCERNING SOLICITATION AND VOTING

General

This proxy statement is being provided to the stockholders of Nanometrics Incorporated as part of a solicitation of proxies by our board of directors for use at our 2010 annual meeting of stockholders. This proxy statement provides stockholders with information they need to know to be able to vote or instruct their vote to be cast at the annual meeting. This proxy statement and the enclosed form of proxy are first being mailed to stockholders of record on or about April 16, 2010.

Important Notice Regarding the Availability of Proxy Materials for the Shareholder Meeting to Be Held on May 28, 2010: The proxy statement is available at www.nanometrics.com/investor/proxy2010.pdf

Date, Time and Place

The annual meeting will be held on Friday, May 28, 2010 at 9:00 a.m., local time, at the Four Seasons Hotel, 98 Jacinto Blvd. Austin, Texas 78701.

Purpose; Other Matters

The annual meeting is being held to consider and vote upon the following:

1. A proposal to elect two Class III directors of Nanometrics, each to serve for a term of three years or until his respective successor has been duly elected and qualified.
2. A proposal to ratify the appointment of PricewaterhouseCoopers as Nanometrics independent registered public accounting firm for the fiscal year ending January 1, 2011.

Stockholders will also be asked to consider and vote upon any other business that may properly come before the annual meeting or any adjournments or postponements of the annual meeting. We do not expect that any matter other than the proposals presented in this proxy statement will be brought before the annual meeting. However, if other matters incident to the conduct of the annual meeting are properly presented at the annual meeting or any adjournment or postponement of the annual meeting, the persons named as proxies will vote in accordance with their best judgment with respect to those matters.

If you vote **AGAINST** any of the proposals, the proxy holders will not be authorized to vote for any adjournments or postponements of the annual meeting, including for the purpose of soliciting additional proxies, unless you so indicate by marking the appropriate box on the proxy card for the annual meeting.

Recommendation of the Board of Directors

The board of directors unanimously recommends that you vote:

FOR the election of the nominees named in this Proxy Statement, each to serve as a Class III director on our board of directors, with the directors who are nominees abstaining.

FOR the proposal to ratify the appointment of PricewaterhouseCoopers, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending January 1, 2011.

Record Date; Outstanding Shares; Voting Rights

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Only holders of record of common stock at the close of business on the record date for the annual meeting, April 1, 2010, are entitled to notice of and to vote at the annual meeting. As of the record date, there were 21,575,558 shares of common stock outstanding and entitled to vote at the annual meeting, held by approximately 256 holders of record. Each record holder of common stock on the record date is entitled to one vote for each share of common stock held as of the record date with respect to all proposals.

A list of stockholders will be available for review at the annual meeting and our executive offices during regular business hours for a period of ten days before the annual meeting.

Admission to the Annual Meeting

Only stockholders, their designated proxies and guests of Nanometrics may attend the annual meeting. If you plan to attend the annual meeting and wish to vote in person, you will be given a ballot at the annual meeting. Please note, however, that if your shares are held in street name, which means your shares are held of record by a broker, bank or other nominee, and you wish to vote at the annual meeting, you must bring to the annual meeting a legal proxy from the record holder of your shares authorizing you to attend and vote at the annual meeting.

Quorum and Vote Required

A quorum of stockholders is necessary to hold a valid annual meeting of stockholders. In order to have a quorum for the transaction of business at the annual meeting, a majority of shares of common stock issued and outstanding and entitled to vote on the record date must be present in person or by proxy at the annual meeting. Shares that are voted FOR, AGAINST, ABSTAIN or WITHHOLD AUTHORITY a matter are treated as being present at the annual meeting for purposes of establishing a quorum.

If your broker holds your shares in its name (also known as street name), the broker is permitted to vote your shares on discretionary matters, even if it does not receive voting instructions from you. Prior to 2010, the election of directors was considered a routine matter for which brokers were permitted to vote your shares. Beginning this year, brokers are no longer permitted to vote your shares for the election of directors. Therefore, we urge you to give voting instructions to your broker on all voting items. Shares that are not permitted to be voted by your broker are called broker non-votes. Broker non-votes are not considered votes for or against a proposal and therefore will have no direct impact on any proposal.

In addition, the vote required to approve each proposal is as follows:

Proposal 1

In the election of our Class III directors, the nominees receiving the highest number of FOR votes will be elected. Abstentions and proxies marked WITHHOLD AUTHORITY will have no effect on the election of directors.

Proposal 2

Approval by the stockholders of the selection of Nanometrics independent registered public accounting firm is not required, but we believe it is desirable as a matter of good corporate governance to submit this matter to the stockholders. If holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote at the annual meeting do not ratify the appointment of Pricewaterhouse Coopers, LLP as our independent registered public accounting firm for the fiscal year ending January 1, 2011, the Audit Committee of the board of directors will consider whether it should select another independent registered public accounting firm.

Voting

General

Stockholders of record as of the record date may vote their shares by attending the annual meeting and voting their shares in person or by completing, signing and dating their respective proxy cards for the annual meeting and mailing them in the postage pre-paid envelope enclosed for that purpose. Stockholders holding shares of common stock in street name, which means that their shares are held of record by a broker, bank, or other nominee, may vote by mail by completing, signing and dating the voting instruction forms for the annual meeting provided by their respective brokers, banks, or other nominees and returning their respective voting instruction forms to the record holders of their shares of common stock. Even if you plan to attend the annual meeting, we recommend that you vote by proxy prior to the annual meeting. You can always change your vote as described below.

Voting by Proxy

All properly executed proxies that are received prior to the annual meeting and not revoked will be voted at the annual meeting according to the instructions indicated on the proxies. If your proxy does not specify how you wish us to vote your shares, your shares will be voted:

FOR the election of the nominees named in this Proxy Statement, each to serve as a Class III director on our board of directors;

FOR the proposal to ratify the appointment of PricewaterhouseCoopers, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending January 1, 2011.

You may receive more than one proxy card depending on how you hold your shares of common stock. Generally, you need to sign and return all of your proxy cards to vote all of your shares. For example, if you hold shares through someone else, such as a broker, you may get proxy material from that person.

Changing Your Vote

If you are the record holder of your shares of common stock, you can change your vote at any time before your proxy is voted at the annual meeting by:

delivering to our corporate secretary a signed notice of revocation;

granting the proxy holders a new, later dated proxy, which must be signed and delivered to our corporate secretary in advance of the vote at the annual meeting; or

attending the annual meeting and voting in person.

Your attendance alone, however, will not revoke your previously granted proxy. If you hold your shares in street name and you have provided voting instructions to your broker, bank or other nominee for the annual meeting, you must follow the instructions provided by your broker, bank or other nominee in order to change your vote or revoke your proxy for the annual meeting.

Proxy Solicitation

Nanometrics is making this solicitation and will pay the entire cost of preparing, assembling, printing, mailing and distributing these proxy materials and soliciting votes. In addition to mailing these proxy materials, proxies or votes may be solicited in person, by telephone or by electronic communication by our directors, officers and employees, who will not receive any additional compensation for such solicitation activities. Upon request, we will reimburse brokerage houses and other custodians, nominees and fiduciaries for forwarding proxy and solicitation materials to stockholders.

Assistance

If you need assistance in completing your proxy card or have questions regarding the annual meeting, please contact Investor Relations at (408) 545-6000 or write to Nanometrics Incorporated, at our executive offices located at 1550 Buckeye Drive, Milpitas, California 95035, Attn: Investor Relations.

Householding of Proxy Materials

The Securities and Exchange Commission has adopted rules that permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements with respect to two or more stockholders sharing the same address by delivering a single proxy statement addressed to those stockholders. This process, which is commonly referred to as householding, potentially provides extra convenience for stockholders and cost savings for companies. Nanometrics and some brokers household proxy materials, delivering a single proxy statement to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Upon written or oral

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request to our Investor Relations department, by mail at 1550 Buckeye Drive, Milpitas, California, 95035 or by telephone at (408) 545-6000, we will promptly deliver a copy of the proxy statement to a stockholder if that stockholder shares an address with another stockholder to which a single copy of the proxy statement was delivered. A stockholder may notify us as described above if the stockholder wishes to receive a separate copy of the proxy statement in the future or, alternatively, if the stockholder wishes to receive a single copy of the materials instead of multiple copies.

Stockholder Proposals

Stockholders are entitled to present proposals for action at the 2011 annual meeting of stockholders. For any proposal to be considered, whether or not for inclusion in our proxy statement and form of proxy for submission to the stockholders at the 2011 annual meeting of stockholders, the proposal must comply with the requirements of Rule 14a-8 under the Exchange Act and be submitted in writing by notice delivered or mailed by first-class United States mail, postage prepaid, to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attention: Office of the Secretary, which must be received by us no later than December 17, 2010. If we change the date of our annual meeting to a date more than 30 days from the date of our previous year's annual meeting, then the deadline for receipt of stockholder proposals will be changed to a reasonable time before we begin to print and mail our proxy. The submission of a stockholder proposal does not guarantee that it will be included in our proxy statement.

Material Proceedings

To the best of management's knowledge, there are no material proceedings to which any director, officer or 5% stockholder is a party and (i) is adverse to Nanometrics or any of its subsidiaries or (ii) has a material interest adverse to Nanometrics or any of its subsidiaries.

PROPOSAL 1

ELECTION OF DIRECTORS

At the 2010 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 our board of directors and is presently a director of Nanometrics. The nominees were recommended by the Nominating and Corporate Governance Committee of the board of directors. 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 of directors to fill the vacancy. We do not have any reason to believe that either of the nominees will be unable or will decline to serve as a director.

Our board of directors currently is comprised of seven (7) members, and is divided into three (3) classes, with staggered three-year terms. Howard A. Bain III, William G. Oldham, Ph.D., and Stephen J Smith, Ph.D. are our current Class I directors, and their terms expire at our 2011 annual meeting of stockholders. Timothy J. Stultz, Ph.D. and J. Thomas Bentley are our current Class II directors, and their terms expire at our 2012 annual meeting of stockholders. Norman Coates and Bruce C. Rhine are our current Class III directors, and their terms expire at this 2010 annual meeting of the stockholders.

Class III Nominees

Norman Coates and Bruce C. Rhine are the nominees for our Class III directors, with a term that expires at the 2013 annual meeting of stockholders.

Norman Coates, 60, has served as a director since August 2009. He previously served on the Nanometrics Board of Directors from 1985 to 2006. Mr. Coates is a successful entrepreneur and businessman and has managed Gem of the River Produce and Coates Vineyards for the past 35 years. In addition to his institutional knowledge from his prior long tenure as a director of the Company, Mr. Coates brings extensive management and entrepreneurial experience to the Board.

Bruce C. Rhine, 53, 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. Mr. Rhine holds a B.S. degree in Chemical Engineering and an M.B.A. in Finance from The Pennsylvania State University. In addition to his experience from his prior senior management service to the Company, Mr. Rhine brings extensive industry knowledge and executive management experience to the Board. Mr. Rhine currently serves on the boards of NEXX Systems, Inc. Pivotal Systems Inc., Phoeson Technology Inc. and JAMA Software, Inc.

Assuming the election of the Class III director nominees, following the 2010 stockholder meeting, the board of directors will be comprised of the following seven (7) members: Howard A. Bain III, William G. Oldham, Ph.D. and Stephen J Smith, Ph.D. will be the Class I directors, J. Thomas Bentley and Timothy J. Stultz, Ph.D. will be the Class II directors, and Norman Coates and Bruce C. Rhine will be the Class III directors.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE

FOR THE NOMINEES SET FORTH ABOVE.

Information Regarding Other Directors Continuing In Office

Set forth below is information regarding each of our continuing directors, including their ages as of April 16, 2010, the periods during which they have served as a director, and certain information as to principal occupations and directorships held by them in corporations whose shares are publicly registered.

Class I Directors whose terms expire in 2011

Howard A. Bain III, 64, has served on our Board since April 2008. He is also a director of Learning Tree International, Inc. and several private venture capital financed companies. Since 2004, he has been an independent consultant in all aspects of corporate finance. He held Chief Financial Officer positions at several public companies including: Portal Software from 2001 to 2004, Vicinity Corporation in 2000, Informix from 1999 to 2000, and Symantec Corporation from 1991 to 1999. He was a consultant with Arthur Andersen LLP where he was a certified public accountant. Mr. Bain holds a B.S. in Business from California Polytechnic University. Mr. Bain's significant financial expertise, including his experience as Chief Financial Officer at several public companies, as well as his experience in various technology companies in the areas of semiconductor devices and manufacturing equipment, laser-based large screen projection systems, and computer disk drives, is invaluable to the

Board.

William G. Oldham, Ph.D., 72, has served as a director since June 2000 and as lead independent director from May 2007 through August 2008. Dr. Oldham, now Professor Emeritus, was a faculty member at the University of California at Berkeley from 1964 to 2003. He serves on the board of directors of Cymer, Inc., a supplier of light sources for deep ultraviolet photolithography systems. Dr. Oldham holds B.S., M.S. and Ph.D. degrees from the Carnegie Institute of Technology. Dr. Oldham's qualifications to serve as director include his experience on public and private boards, including his consultation to numerous companies in the semiconductor industry, his scientific background, industrial and academic experience, including expertise in semiconductor processing and metrology.

Stephen J Smith, Ph.D., 63, has served as a director since April 2004. Dr. Smith has been a professor in the Department of Molecular and Cellular Physiology at the Stanford University School of Medicine since 1989. He served on the faculty of Yale University from 1980 until 1989. Dr. Smith holds a B.A. degree from Reed College and a Ph.D. from the University of Washington. Dr. Smith's qualifications to serve as director include his scientific and academic backgrounds in the fields of optics, automated microscopy and digital image analysis. He has extensive industrial consulting experience in areas pertaining to the design and marketing of optical imaging and metrology tools for biotechnology. He teaches numerous courses in microscopy and digital imaging at Stanford and other international expert teaching venues.

Class II Directors whose terms expire in 2012

J. Thomas Bentley, 60, has served as a director since April 2004. Mr. Bentley served as a Managing Director at SVB Alliant (formerly Alliant Partners), a mergers and acquisitions firm, since he co-founded the firm in 1990 until October 2005. Mr. Bentley currently serves on the board of directors of Rambus, Inc., a chip interface technology company. Mr. Bentley holds a B.A. degree in Economics from Vanderbilt University and a Masters of Science in Management from the Massachusetts Institute of Technology. Mr. Bentley's extensive knowledge of the capital markets, strategic planning and mergers and acquisitions from SVB Alliant provides invaluable expertise to our Board in matters regarding the Company's capital requirements and strategic direction.

Timothy J. Stultz, Ph.D., 62, has served as President, Chief Executive Officer and a director since August 2007. From June 2003 to August 2007, Dr. Stultz served as the President and Chief Executive Officer 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 and technologies for the analysis of biomolecules, drugs and chemicals. 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 our Company, Dr. Stultz's scientific background and significant senior executive management experience in high tech industries, is invaluable to the Board.

Compensation of Directors

During fiscal year 2009, directors who were not also employees of Nanometrics received an annual retainer fee of \$20,000, plus \$1,500 for each board meeting attended on site and \$500 for telephonic board meetings lasting more than 30 minutes. The Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating and Corporate Governance Committee Chairman received an incremental \$15,000, \$10,000, \$5,000 and \$5,000 annual retainer, respectively, for serving in such capacities and each committee member received an additional \$2,000 annual retainer. Committee members received \$1,500 for committee meetings (for which they served as a member) that were attended on site and \$500 for telephonic committee meetings lasting more than 30 minutes.

Non-employee directors were also eligible to participate in our 2000 Director Stock Option Plan whereby each director received a stock option award of 20,000 options upon appointment to the board of directors and 2,500 stock options on the second business day of each quarter thereafter, provided the director has served on the board of directors for at least six months on each grant date. One-third (1/3) of the shares subject to the option shall vest on the one year anniversary of the vesting commencement date, and an additional one-third (1/3) of the shares subject to the option will vest each year thereafter on the annual anniversary of the vesting commencement date, subject to the director continuing to provide services to Nanometrics through each such date. It is anticipated that future option grants to non-employee directors will generally be made from our 2005 Equity Incentive Plan.

During fiscal year 2009, the Board of Directors approved a change to the Compensation of Directors to be effective in fiscal year 2010 whereby non-employee Directors receive an annual retainer fee of \$30,000 while eliminating the fee for each meeting attended. In addition, The Chairman of the Board, Audit Committee Chairman, Compensation Committee Chairman and Nominating and Corporate Governance Committee chairman receive an incremental \$15,000, \$20,000, \$15,000 and \$10,000 annual retainer respectively. In addition, for serving in the capacity as committee member a fee of \$7,500 will be awarded annually.

Existing Non-Employee directors will also receive Annual Equity awards from the Nanometrics 2005 Equity Incentive Plan to commence at each shareholders meeting in the amount of \$62,500 with equal portions being delivered in Options and RSUs with the Options number determined by using the same methodology the Company uses to record the accounting expense. The awards will vest on the one year anniversary date of the award. New Directors will be awarded with an initial equity grant value of \$75,000 with equal portions of options and RSUs with the Options being determined by using the same methodology the Company uses to record the accounting expense. Vesting on said awards will be in three equal annual installments. This plan went into effect January 1, 2010 with a pro-rated amount being awarded to cover services to be rendered through May 30, 2010. Effective with this 2010 annual meeting of Stockholders, an annual award will be made to our Directors in accordance with the new plan. This plan applies on a prospective basis, whereas the prior plan which was on a retroactive basis. Should a recipient director cease serving as a member of the Company's Board, a portion of the fees and equity awards shall be forfeited on a pro-rated basis.

2009 Director Compensation Table

The following table sets forth information regarding compensation for each of our nonemployee directors for fiscal year 2009. The Company's nonemployee director compensation program is comprised of: cash compensation, consisting of annual retainer fees, including amounts associated with chairing Board committees; meeting fees and equity compensation, consisting of stock option grants and restricted stock units. Each of these components is described in more detail below.

DIRECTOR COMPENSATION

For Fiscal Year 2009

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)(1), (11)	Option Awards (\$)(1)	Option Awards (#)(1)	All Other Compensation (\$)(2)	Total (\$)
Bruce C. Rhine (3)	\$ 46,000	\$ 3,000	\$ 15,073	10,000		\$ 64,073
Howard A. Bain (4)	\$ 52,000	\$ 3,000	\$ 15,073	10,000	\$ 3,221	\$ 73,294
J. Thomas Bentley (5)	\$ 52,500	\$ 3,000	\$ 15,073	10,000	\$ 3,970	\$ 74,543
Norman Coates(6)	\$ 11,667		\$ 60,204	20,000		\$ 71,871
William G. Oldham, Ph.D. (7)	\$ 50,667	\$ 3,000	\$ 15,073	10,000		\$ 68,740
Stephen J Smith Ph.D. (8)	\$ 49,500	\$ 3,000	\$ 15,073	10,000	\$ 2,180	\$ 69,754
Vincent J. Coates (9)	\$ 18,333	\$ 3,000	\$ 6,784	7,500	\$ 59	\$ 28,177
Edmond Ward (10)	\$ 24,460	\$ 3,000	\$ 3,274	5,000	\$ 75	\$ 30,809

- (1) Amounts shown do not reflect compensation actually received by the named director. Instead, the amounts shown are the aggregate fair value of stock options granted for financial statement reporting purposes in 2009, as determined pursuant to ASC Topic 718. The assumptions used to calculate the value of option awards are set forth under Note 5 of the Notes to Consolidated Financial Statements included in Nanometrics' Annual Report on Form 10-K for fiscal 2009 filed with the SEC on March 26, 2010.
- (2) Representing health care reimbursement benefit extended to directors and Section 16 officers.
- (3) At January 2, 2010, Mr. Rhine had 137,122 outstanding options to purchase shares of common stock. The fair value of stock options granted in 2009 as of the grant date was (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share (c) \$3,510 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2009, at a fair value of \$1.40 per share (d) \$8,290 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2009 at a fair value of \$3.32 per share.
- (4) At January 2, 2010, Mr. Bain had 32,500 outstanding options to purchase shares of common stock. The fair value of stock options granted in 2009 as of the grant date was (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share (c) \$3,510 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2009, at a fair value of \$1.40 per share (d) \$8,290 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2009 at a fair value of \$3.32 per share.
- (5) At January 2, 2010, Mr. Bentley had 50,000 outstanding options to purchase shares of common stock. The fair value of stock options granted in 2009 as of the grant date was (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share (c) \$3,510 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2009, at a fair value of \$1.40 per share (d) \$8,290 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2009 at a fair value of \$3.32 per share.

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- a fair value of \$3.32 per share.
- (6) At January 2, 2010, Mr. Norman Coates had 20,000 outstanding options to purchase shares of common stock. The fair value of stock options granted in 2009 as of the grant date was \$60,204 for a stock option grant to purchase 20,000 shares of common stock made on August 25, 2009 at a fair value of \$3.01 per share.
 - (7) At January 2, 2010, Mr. Oldham had 50,000 outstanding options to purchase shares of common stock. The fair value of stock options granted in 2009 as of the grant date was (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share (c) \$3,510 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2009, at a fair value of \$1.40 per share (d) \$8,290 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2009 at a fair value of \$3.32 per share.
 - (8) At January 2, 2010, Mr. Smith had 50,000 outstanding options to purchase shares of common stock. The fair value of stock options granted in 2009 as of the grant date was (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share (c) \$3,510 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2009, at a fair value of \$1.40 per share (d) \$8,290 for a stock option grant to purchase 2,500 shares of common stock made on October 2, 2009 at a fair value of \$3.32 per share.
 - (9) At January 2, 2010, Mr. Vincent J. Coates had no outstanding options to purchase shares of common stock. There were three stock option grants made on (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share (c) \$3,510 for a stock option grant to purchase 2,500 shares of common stock made on July 2, 2009, at a fair value of \$1.40 per share, however, all were subsequently cancelled with his resignation from the Board, August of 2009.
 - (10) At January 2, 2010, Mr. Ward had no outstanding options to purchase shares of common stock. There were Two stock option grants made on (a) \$1,670 for a stock option grant to purchase 2,500 shares of common stock made on January 6, 2009, at a fair value of \$0.69 per share (b) \$1,604 for a stock option grant to purchase 2,500 shares of common stock made on April 2, 2009, at a fair value of \$0.64 per share, however, all were subsequently cancelled with his resignation from the Board, May of 2009.
 - (11) Each of these Directors, with the exception of Mr. Norman Coates received an RSU award in the amount of 2,000 units on January 6, 2009 for their service on the Board for fiscal year 2009. The fair market value of said awards was \$1.50 per unit.

Board of Directors Meetings and Committees

The board of directors met a total of eight times during the fiscal year ended January 2, 2010. During the fiscal year ended January 2, 2010, all directors attended at least 75% of the aggregate number of meetings of the board of directors and meetings of committees upon which they served. The standing committees of the board of directors include an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee.

The board of directors has determined that all of its directors meet the independence requirements of the NASDAQ Global Market, with the exceptions of Bruce C. Rhine and Timothy J. Stultz, Ph.D.

Directors are encouraged to attend the annual meeting of stockholders. All directors attended the 2009 annual meeting.

Audit Committee

The Audit Committee of the board of directors reviews and monitors our financial reporting as well as our internal and external audits, including among other things, our internal audit and control functions, the results and scope of the annual audit and other services provided 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 fee arrangements with, our independent registered public accounting firm. The Audit Committee also monitors transactions between Nanometrics and our officers, directors and employees for any potential conflicts of interest and assists the board of directors in its risk oversight role.

The Audit Committee currently consists of Howard A. Bain III (chairman), J. Thomas Bentley and William G. Oldham. Our 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. Our board of directors has also determined that each member of the Audit Committee is able to read and understand financial statements. Further, the board of directors has determined that each of Mr. Bain, Chairman of the Audit Committee, and Mr. Bentley qualifies as an audit committee financial expert as that term is used in the Securities and Exchange Commission rules. The Audit Committee met eight times during the fiscal year ended January 2, 2010.

The report of the Audit Committee is included on page 20 of this proxy statement. The Audit Committee has adopted a written charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Compensation Committee

The Compensation Committee has overall responsibility for evaluating and approving our executive officer incentive compensation, benefit, severance, equity-based or other compensation plans, policies and programs. For fiscal year 2009, the Compensation Committee reviewed and made recommendations to the board of directors regarding our compensation policies and programs for the chief executive officer as well as established and had oversight with regard to the other executive officers of Nanometrics, and recommended to the board of directors a compensation program for outside members of the board of directors. The Compensation Committee may form and delegate authority to subcommittees or, with respect to compensation for employees and consultants who are not named executive officers for purposes of Section 16 of the Exchange Act, to Nanometrics officers, in either instance as the Compensation Committee determines appropriate.

The Compensation Committee is responsible for approving the grant of stock options to our employees under our 2000 Employee Stock Option Plan, 2002 Non-statutory Stock Option Plan and 2005 Equity Incentive Plan. The Compensation Committee also assists the board of directors in assessing the risks, if any, associated with the Company's overall compensation policies.

The Compensation Discussion and Analysis included in this proxy statement includes additional information regarding the Compensation Committee's processes and procedures for considering and determining executive officer compensation. The report of the Compensation Committee is included on page 27 of this proxy statement.

The Compensation Committee currently consists of our Compensation committee chairman J. Thomas Bentley, William G. Oldham and Stephen J Smith. Each 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. Our board of directors has determined that each of the directors serving on our Compensation Committee is independent within the meaning of the rules of the Securities and Exchange Commission and the Listing Rules of NASDAQ. The Compensation Committee met six times during fiscal 2009.

The Compensation Committee has adopted a written charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Nominating and Corporate Governance Committee

We also maintain a standing Nominating and Corporate Governance Committee that assists the board of directors in identifying and qualifying candidates to join the board of directors and addressing governance issues. The Nominating and Corporate Governance Committee currently consists of Stephen J Smith (chairman) and William G. Oldham. Our board of directors has determined that each of the directors serving on our Nominating and Corporate Governance Committee is independent within the meaning of the rules of the Securities and Exchange Commission and the Listing Rules of NASDAQ. The Nominating and Corporate Governance Committee utilizes a variety of methods for identifying and evaluating nominees. Its general policy is to assess the appropriate size of the board of directors and whether any vacancies are expected due to retirement or otherwise. In the event those vacancies are anticipated, or otherwise arise, the Nominating and Corporate Governance Committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the Nominating and Corporate Governance Committee through its current members, stockholders or other persons. Pursuant to the Nominating and Corporate Governance Committee Charter, the committee will consider properly submitted stockholder nominations for candidacy. Nominees may be submitted by stockholders in accordance with Nanometrics bylaws as discussed under Shareholder Proposals above. Director candidates submitted by stockholders will be considered under the same criteria as candidates recommended by directors or others.

The Nominating and Corporate 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 Corporate Governance Committee also recommends to our 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 Corporate 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 The NASDAQ Stock Market LLC. The Nominating and Corporate Governance Committee also monitors our board of directors and our compliance with any commitments made to our regulators or otherwise regarding changes in corporate governance practices.

The Nominating and Corporate Governance Committee does not have a stated policy with regard to diversity of the Board, 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 Nominating and Corporate Governance Committee met four times in the fiscal year ended January 2, 2010.

The Nominating and Corporate Governance Committee has adopted a written charter, which is available on our website at www.nanometrics.com/investor/governance.html.

Board Structure

Bruce C. Rhine serves as the Chairman of the Board and Timothy J. Stultz serves as both the Chief Executive Officer and a director of the Company. We believe that having a separate Chairman and Chief Executive Officer is appropriate given the current characteristics of the Company's management. 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 high level executive roles with the Company, Mr. Rhine is intimately familiar with the Company's business and industry, and most capable of effectively identifying strategic priorities, leading discussions of the board of directors and defining the Company's strategic objectives. Mr. Stultz, as the Chief Executive Officer, is the individual selected by the board of directors to manage the Company on a day-to-day basis, and his direct involvement in the Company's operations allows him to provide valuable insights with respect to strategic planning and the operational requirements to meet the Company's short- and long-term objectives. The Company's 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 the Company's strategic plans and objectives, including the principal risk exposures of the Company. The Audit Committee assists the Board in oversight and monitoring of the legal and financial risks facing the Company, 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 the Company's exposure to risk, as well as the Company's major financial risk exposures and the steps management has taken to monitor and control such exposures, based on consultation with the Company's management and independent auditors. The Board addresses, at least annually, the principal current and future risk exposures of the Company. The Board receives regular reports from members of senior management on areas of material risk to the Company, including operational, financial, legal and regulatory, and strategic and reputation risks.

Code of Ethics

We have adopted a code of business conduct and ethics that applies to all executive officers and employees. We post our code of business conduct and ethics on our website at; www.nanometrics.com/investor/governance.html.

We intend to disclose any amendment to the provisions of the code of business conduct and ethics that apply specifically to executive officers by filing such information on a Current Report on Form 8-K with the SEC, to the extent such filing is required by SEC Rules or the NASDAQ Stock Market LLC's listing requirements; otherwise, we will disclose such waiver by posting such information on our website.

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 by notice delivered or mailed by first-class United States mail, postage prepaid, 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, in which case we have the authority to discard the communications or take appropriate legal action regarding the communication.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth beneficial ownership of Nanometrics common stock as of April 1, 2010, 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, the address of each executive officer or director of Nanometrics is 1550 Buckeye Drive, Milpitas, CA 95035. As of the close of business on April 1, 2010, there were 21,575,558 shares of common stock outstanding.

Name Of Beneficial Owner	Principal Stockholders	Amount and Nature Of Beneficial Ownership (1) Shares			
		Shares	Stock Options Exercisable Within 60 Days Of 4/1/10	Total Shares Beneficially Owned	Percent Of Class
Dimensional Fund Advisors (2)		1,280,466		1,280,466	5.9%
Insight Capital Research & Management, Inc. (3)		1,235,710		1,235,710	5.7%

Name Of Beneficial Owner	Directors And Officers	Amount and Nature of Beneficial Ownership (1) Shares			
		Shares	Stock Options Exercisable Within 60 Days Of 4/1/2010	Total Shares Beneficially Owned	Percent Of Class
Bruce C. Rhine		921,176	126,565	1,047,741	4.7%
Norman Coates (4)		2,683,626	0	2,683,626	12.1%
Howard A. Bain III (5)		8,166	15,832	23,998	*
J. Thomas Bentley		5,166	24,996	30,162	*
William G. Oldham, Ph.D.		4,944	24,996	29,940	*
Stephen J Smith, Ph.D.		5,166	24,996	30,162	*
Timothy J. Stultz, Ph.D.		71,598	241,666	313,264	1.4%
Bruce A. Crawford.		73,999	184,574	258,573	1.2%
James P. Moniz		14,237	44,166	58,403	*
All officers and directors as a group (9 persons)		3,788,078	687,791	4,475,869	20.10%

* Less than 1%.

- (1) As determined in accordance with Rule 13d-3 under the Securities and Exchange Act of 1934.
- (2) According to a Schedule 13G filed with the SEC on February 10, 2010, Dimensional Fund Advisors LP may be deemed to be the beneficial owner of 1,280,466 shares of common stock. The address of Dimensional is Palisades West, Building One, 6300 Bee Cave Road, Austin, Texas, 78746.
- (3) According to a Schedule 13G filed with the SEC on January 29, 2010, Insight Capital Research & Management, Inc. (Insight) may be deemed to be the beneficial owner of 1,235,710 shares of common stock. The address of Insight Capital Research & Management, Inc. is 2121 N. California Blvd., Suite 560, Walnut Creek, CA
- (4) Includes (i) 2,682,460 shares held of record by the Vincent J. Coates Separate Property Trust, U/D/T of which Mr. Norman Coates and Ms. Stella Coates are co-trustees and (ii) 1,166 shares held of record by Mr. Norman Coates
- (5) Shares held of record by Mr. Bain and his spouse.

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. Based solely on our review of the copies of such forms received by it or written representations from certain reporting persons, we believe that since the beginning of the fiscal year ended January 2, 2010, our executive officers, directors and greater than 10% stockholders complied with all applicable filing requirements except that: our Chief Financial Officer, James P. Moniz, did not timely file one report with respect to one transaction; Vincent J. Coates, a director (until August 25, 2009) and greater than 10% stockholder (as the indirect beneficial owner of more than 10% of Nanometrics outstanding common stock held of record by the Vincent J. Coates Separate Property Trust (the Coates Trust) until he resigned as Trustee of the trust on May 19, 2009), did not timely file one report with respect to one

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transaction; Norman V. Coates, a director who is also a greater than 10% stockholder (who became the indirect beneficial owner of more than 10% of Nanometrics' outstanding common stock held of record by the Coates Trust when he was appointed as co-Trustee of the trust on May 19, 2009), did not file 3 reports; Stella Coates, a greater than 10% stockholder (who became the indirect beneficial owner of more than 10% of Nanometrics' outstanding common stock held of record by the Coates Trust when she was appointed as co-Trustee of the trust on May 19, 2009), did not file 4 reports; and the Coates Trust, a greater than 10% stockholder, did not file one report.

EXECUTIVE COMPENSATION

2009 Compensation Discussion and Analysis

Overview

Nanometrics' executive compensation program is intended to enable us to attract, retain and motivate key executives and to align their compensation with our short-term and long-term performance. In accordance with the Compensation Committee Charter, a copy of which may be obtained on our website at www.nanometrics.com/investor/governance.html, the Compensation Committee acts on behalf of the board of directors and, by extension, our stockholders to establish, implement and continually monitor adherence with our compensation philosophy. The Compensation Committee ensures that the total compensation paid to our named executive officers is competitive and consistent with our compensation philosophy. All members of the Compensation Committee are independent directors within the meaning of the rules of the Securities and Exchange Commission and the Listing Rules of NASDAQ. The Compensation Committee relies upon Compensia, a compensation consulting firm, and human resources to provide information and recommendations to establish specific compensation packages for executives.

Philosophy and Objectives

The Compensation Committee's philosophy is to design a compensation package that balances the need for executive alignment in terms of producing short-term and long-term enhanced stockholder value while maintaining retention and motivation through appropriate incentives using both internal equity and external market information relative to our industry and size. Nanometrics' compensation philosophy is set by the Compensation Committee and is approved by the board of directors.

The Compensation Committee's principal objectives are to: (1) develop, recommend and approve (with the exception of our Chief Executive Officer), compensation packages that are aligned with our philosophy; (2) link executive compensation to the achievement of financial, management or other performance goals and; (3) 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 include three primary components; base salaries, target bonus award opportunities and long-term incentive award values. Other elements include limited perquisites, other benefits (including retirement, health, and welfare benefits), and severance arrangements. The three primary components are considered individually and in the aggregate on an annual basis to assess their competitiveness and to determine how they will retain our executives and motivate them to create short-term and long-term enhanced stockholder value. Even though this review takes place on an annual basis, there is no guarantee that changes are warranted or will be implemented.

In our review, we take into consideration publicly available market data for companies which tend to include similarly-sized semiconductor and semiconductor capital equipment companies for each executive in a like or similar role, (see below for our Peer Group Companies considered in 2009).

Peer Group Companies

Cascade Microtech, Inc.
Intevac, Inc.
Mattson Technology, Inc.
Rudolph Technologies, Inc.
Zygo Corporation
Cohu, Inc.

Electro Scientific Industries, Inc.
FSI International, Inc.
Keithley Instruments Inc.
Semitool, Inc.
Ultratech, Inc.

The Companies above were selected because they operate in our same industry, are comparable to Nanometrics in terms of either revenue (\$50M to \$160M) and/or market capital size (\$34M to \$360M).

The data gathered is generally available through searches of publicly available information. We gather data with respect to base salary, bonus targets and all equity awards, including stock options and restricted stock units. We generally do not gather data regarding deferred compensation or employee benefits such as 401(k) or health care coverage generally available to broad groups of employees. Compensation, our independent compensation consulting firm is charged with gathering the market data and helping to inform the compensation committee using their marketplace expertise and the market data gathered. While the market data may identify a certain percentile of the market in which we operate, the committee does not target any specific percentile with regard to base, bonus or long-term incentives but instead looks at each element as compared to the total target cash package and subjectively considers the various components with the desired results, internal equity and the information provided and then decides if a change is warranted or not. The Compensation Committee then consults the CEO with regard to executives who report to him, (Mr. Crawford, our Chief Operating Officer and Mr. Moniz, our Chief Financial Officer), and their performance. The Chief Executive Officer annually reviews the performance of the executives who report to him, using the elements described under 2009 Executive Compensation Components below and makes recommendations about the structure of the overall compensation program and individual compensation arrangements to the Compensation Committee. This framework provides a guide for the Compensation Committee's deliberations and recommendations regarding proposals for salary increases, bonus awards and long-term equity incentive awards for each executive position. The Compensation Committee then comes to a conclusion based on the framework outlined above to either approve, or in the case of the Chief Executive Officer, recommend to the board of directors an appropriate compensation package for each executive. Typically, this involves establishing their annual bonus opportunities and granting long-term equity incentive awards.

In addition, the Committee considers those factors that are controllable by management such as expenses and cash, revenue attainment to some extent as well as account penetration and long-term shareholder value delivery perspective.

2009 Executive Compensation Components

Nanometrics' approach to total compensation is to create a comprehensive compensation package designed to reward individual performance based on our short-term and long-term performance and how this performance links to Nanometrics' corporate strategy. For the fiscal year ended January 2, 2010, the principal components of compensation for named executive officers, Messrs. Stultz, Crawford and Moniz were:

Base salary;

Bonus;

Stock option grants;

Restricted stock unit (RSU) grants;

Retirement and other benefits; and

Perquisites

Nanometrics has chosen these components because we believe that each supports achievement of one or more of our compensation objectives, and that together they have been and will continue to be effective in this regard. The use of each compensation component is based on a subjective determination by the Compensation Committee of the importance of each compensation objective in supporting our business and talent strategies. These components are common in their use for executives at peer companies and therefore, we find these to be appropriate in our talent retention strategy. This 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, individual performance and length of service with Nanometrics.

Base Salary

Base salaries serve as the foundation of Nanometrics' compensation program. Other executive compensation elements, including annual short-term incentives, long-term incentives, are derived by weighing them against base salary. Nanometrics provides named executive officers with base salary to compensate them for services rendered during the fiscal year and are set at a level which the Compensation Committee believes will effectively attract and retain top talent. Base salaries for named executive officers are determined for each executive based on their

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position and responsibility as well as the contribution that they bring to the Company through performance. During its review of base salaries for executives, the Compensation Committee primarily considers:

the salaries of executive officers in similar positions at our peer group companies;

our financial performance over the past year based upon revenues and operating results; and

the individual performance of the executive officer's duties and areas of responsibility as evaluated by the Chief Executive Officer (except in the case of the Chief Executive Officer, whose performance is evaluated by the board of directors).

Salary levels are typically considered annually as part of our performance review process as well as upon a promotion or other change in job responsibility. Stock price performance has not been a factor in determining annual base salary compensation because the price of our common stock is subject to a variety of factors outside of our control.

After careful review and discussion, in November of 2009, salary increases for Nanometrics named executive officers Dr. Stultz and Mr. Crawford were approved and effective with our new fiscal year. Dr. Stultz received an increase in base salary from \$377k in fiscal year 2009 to \$400k for 2010. Mr. Crawford received an increase in base salary from \$313.5k in fiscal year 2009 to \$330k for the fiscal year 2010. Salaries are reviewed and determined by the Compensation Committee after considering salary data supplied by our Compensation Consultant which uses peer comparison groups, as well as a subjective consideration of the internal pay relationships for our executives based on their relative duties and responsibilities.

Bonus

The Compensation Committee may approve cash bonuses to certain named executive officers. The Compensation Committee views such bonuses as part of its performance based compensation program and is designed to align participants interests with our annual goals and objectives and stockholders interests. Such bonuses are generally based on our financial (primarily profitability), and operational performance for the year and are determined as a percentage of the executive officer s salary.

For fiscal year 2009, the Compensation Committee established target bonus awards to be 54% of base salary for Dr. Stultz and 50% of base salary for both Mr. Crawford and Mr. Moniz which could have resulted in awards of \$203.5k for Dr. Stultz, \$156.8k for Mr. Crawford and \$150k for Mr. Moniz. Given the unprecedented economic climate faced in 2009, coupled with the fact that overall non-GAAP Operating Income targets were not met, the Compensation Committee decided that full bonuses were not warranted, and instead rewarded our executives for performance experienced in the last half of 2009 based on Non-GAAP profitability for the last half of fiscal 2009. Amounts of the awards were derived primarily by taking the targeted bonus amounts and dividing them in half and then applying subjective discretion (taking into account, for the last half of the year, revenue achievement, account penetration, management of operating expenses and the individual contributions made by each executive. The Committee approved modified fixed bonus amounts of \$150,000, \$112,500, and \$75,000 to be paid to Dr. Stultz, Mr. Crawford and Mr. Moniz respectively. Instead of cash, the awards were paid in restricted stock units, 100% fully vested on the award date.

In November of 2009, the Compensation Committee revised, and the Board of Directors approved, bonus target awards as a function of peer group company data review and increased the bonus target opportunities for both Dr. Stultz and Mr. Crawford to 60% of base salary effective with the new fiscal year.

Stock Option Grants

The Compensation Committee believes that equity compensation plans are an essential tool to link the long-term interests of stockholders and employees, especially the executive officers, including the named executive officers, and serve to motivate executives to make decisions that will, in the long run, give the best returns to stockholders.

Grants under Nanometrics Stock Option Plans enable us to:

enhance the link between the creation of stockholder value and long-term executive incentive compensation;

provide an opportunity for increased equity ownership by executives; and

maintain competitive levels of total compensation.

Stock option award levels are determined based on an analysis of peer group data with no stringent formulaic approach.

In November 2009, the Committee, after a subjective review of peer group competitive data and the long-term incentive position of each executive, approved the issuance of non-qualified options under the 2005 Plan in the amounts of 25,000 stock options to Bruce Crawford, our Chief Operating Officer and 15,000 stock options to Jim Moniz, our Chief Financial Officer and recommended to the Board of Directors an award of 50,000 stock options to Dr. Stultz, our Chief Executive Officer (which was then approved by the Board). Vesting of the awards are in monthly installments starting on the monthly anniversary of the date of grant over 36 months. In fiscal 2009, the Companies shareholders approved a one-time stock option exchange program for eligible employees and executive offers. One Officer, Mr. Crawford participated in the exchange. Nanometrics commenced the exchange program in August of 2009 with completion of the exchange taking place on September 3, 2009. Pursuant to the exchange offer, 448,944 eligible stock options were tendered, representing 25.2% of the total stock options eligible for exchange in the offer. The Company granted an aggregate of 237, 838 new stock options in exchange with an exercise price of \$7.50.

Restricted Stock Unit Grants

Similar to stock options, the Compensation Committee believes that RSUs, which increase in value as the market price of our common stock increases, both align our executives to work toward the longer term goal of creating stockholder value and provide retention value. RSUs provide alignment to the shareholder in that our executive officers are exposed to the same market risk experienced by stockholders.

In November 2009, the Committee, after a subjective review of peer group data and the long-term incentive position of each executive, approved the issuance of restricted stock units, to be delivered on a net tax basis, under the 2005 Plan in the amount of 10,000 RSUs to Bruce Crawford, our Chief Operating Officer and 6,000 RSUs to Jim Moniz, our Chief Financial Officer and recommended to the Board of Directors an award of 20,000 RSUs to Tim Stultz (which was then approved by the Board), with vesting to commence in three annual installments on the grant date.

Retirement Benefits and Generally Available Benefits Programs

All employees in the United States, including the named 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. The Company's 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 of all employee contributions.

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, enhanced health and productivity, and support global workforce mobility, in full compliance with applicable legal requirements. These generally available benefits typically do not specifically factor into decisions regarding an individual named 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 and with other similar companies in our peer group. Although the Compensation Committee seeks the advice of the human resources department on general market competitiveness for these benefits, it does not use formal benchmarking information.

In fiscal 2009, all corporate officers and non-employee directors were eligible to participate in an Exec-U-Care/Executive (Phillips Administrative Service, Inc.) Reimbursement Plan to supplement our basic health plan by reimbursing expenses not covered under the underlying plan. Dr. Stultz is awarded a car allowance. Attributed costs of the perquisites described above for the named executive officers for the fiscal year ended January 2, 2010, are included in the Summary Compensation Table on page 22.

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, the Company has entered into agreements with its three named executive officers providing for severance payments and benefits upon a termination of employment without cause or constructively, and in connection with a change in control of Nanometrics, as described in greater detail below in the section headed Employment Contracts and Termination of Employment and Change-in-Control Arrangements.

In order to aid the Compensation Committee in determining such severance payments and benefits, the Compensation Committee analyzes data and suggestions from our Compensation Consultancy Firm Compensia as well as the human resources department, including benchmarking against the compensation peer group of publicly-traded semiconductor equipment manufacturing companies. This peer group is consistent with the group that we use to help guide our decision making on the total compensation packages for our executives (outlined above under Philosophy and Objectives Applied).

After considering industry practices and reviewing the policies and practices of the companies in our peer group, the Compensation Committee determined that these severance and benefits agreements were necessary and appropriate to provide competitive compensation to the types of individuals we wanted to recruit and retain. The Compensation Committee also believes that these agreements are consistent with our overall compensation philosophy. The Compensation Committee continues to periodically monitor industry practice in this area to ensure that these agreements remain consistent with our overall compensation philosophy of targeting the competitive median while preserving our ability to attract and retain key executives.

Tax and Accounting Implications

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, the Compensation Committee reviews and considers the deductibility of executive compensation under Section 162(m) of the Internal Revenue Code, which provides that we may not deduct compensation of more than \$1,000,000 that is paid to certain executive officers, unless certain exemption requirements are met. Exemptions to this deductibility limit may be made for various forms of performance-based compensation. We believe that compensation paid under the management incentive plans is generally fully deductible for federal income tax purposes. However, in certain situations, the Compensation Committee may approve compensation that will not meet these requirements in order to ensure competitive levels of total compensation for its executive officers.

Section 4999 and Section 280G of the Internal Revenue Code provide that executives 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 we could lose an income tax deduction for such payments. We have not provided any executive with tax gross up or other reimbursement for tax amounts the executive might be required to pay under to Section 4999.

Section 409A of the Internal Revenue Code imposes additional taxes and interest on underpayments in the event an executive defers compensation under a plan that does not meet the requirements of Section 409A. We believe 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.

Compensation of Executive Officers

The following table sets forth the compensation for the past three fiscal years to (i) our Chief Executive Officer, (ii) our Chief Financial Officer, and (iii) each of our three most highly compensated executive officers (or such lesser number of executive officers as we may have) not serving as Chief Executive Officer or Chief Financial Officer; and (iv) up to an additional two individuals that would have been included under item (iii) but for the fact that the individuals were not serving as executive officers as of January 2, 2010, all of whom are collectively referred to as the named executive officers.

SUMMARY COMPENSATION TABLE

Fiscal Year 2009

Name and Principal Position	Fiscal Year	Salary (\$)	Bonus (\$)	Stock	Option	Non-Equity	All Other	Total (\$)
				Award (\$)(2)	Awards (\$)(3)	Plan Compensation (\$)	Compensation (\$)	
Dr. Timothy J. Stultz President, Chief Executive Officer and Director	2009	\$ 330,600	\$ 25,000(1)	\$ 411,600	\$ 369,655		\$ 19,280(4)	\$ 1,156,135
	2008	\$ 374,100	\$ 150,000		\$ 48,210		\$ 95,511	\$ 667,821
	2007	\$ 123,250	\$ 168,861	\$ 367,500	\$ 771,240		\$ 56,300	\$ 1,487,151
Bruce A. Crawford Chief Operating Officer	2009	\$ 289,385		\$ 243,300	\$ 230,087		\$ 4,528(5)	\$ 767,300
	2008	\$ 313,500			\$ 24,105		\$ 27,378	\$ 364,983
	2007	\$ 302,462		\$ 136,000	\$ 40,214	\$ 16,613	\$ 22,660	\$ 517,949
James P. Moniz Chief Financial Officer	2009	\$ 231,923		\$ 153,480	\$ 170,627		\$ 4,400(6)	\$ 560,430
	2008							

- (1) Bonus award to Dr. Stultz for FY 2009 represents the amount remaining under his 2007 employment agreement with the Company.
- (2) Messer s Stultz, Crawford and Moniz were awarded 20k, 10k and 6k RSU s respectively on 11/17/2009 at a FMV of \$13.08 per share which vest in three equal installments over a period of three years. Included are also 2009 earned bonuses which were paid in RSU s on 2/23/2010 in the amounts of 15,075, 11,307 and 7,538 for each Dr. Stultz, Mr. Crawford and Mr. Moniz respectively. Each RSU was 100% vested and delivered on a net share basis. The fair market value on the date of the award was \$9.95.

(3) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts shown are the aggregate fair value of stock options granted for financial statement reporting purposes, as determined pursuant to ASC Topic 718. The assumptions used to calculate the value of option awards are set forth under Note 5 of the Notes to Consolidated Financial Statements included in Nanometrics Annual Report on Form 10-K for the fiscal year ended January 2, 2010 filed with the SEC on March 26, 2010. Messers Stultz, Crawford and Moniz were awarded 50k, 25k and 15k respectively, options to purchase common stock on 11/17/2009 at a fair value of \$7.40 per share which vests in equal 1/36th installments on each monthly anniversary date of the grant. Mr. Crawford received two additional option grants in FY2009 one of which was dated 9/3/2009 for 8,262 shares which was a result of his participation in our stock exchange program and resulted in a fair value of \$4.05 per share with vesting terms of 1/3rd immediately vested and the remaining 2/3rd s to vest pro-rata on a monthly basis beginning on the 13th month anniversary date of the grant and the other option grant which was dated 2/25/2009 for 20k options at a fair value of \$0.59 per share with vesting terms of 1/36th installments on each monthly anniversary date of the grant. Mr. Moniz received a grant of 100k options upon hire dated 2/28/2009 at a fair value of \$0.60.

(4) Represents amounts received by Dr. Stultz for Auto Allowance of \$14.4k, Health Care reimbursement extended to officers and directors in the amount of \$913 and 401(k) employer matching benefit of \$3,967.

(5) Amount is comprised of payments made to Mr. Crawford of \$128 for health care reimbursement extended to officers and directors and \$4,400 in 401(k) employer matching benefit.

(6) Amount is comprised of \$4,400 in 401(k) employer matching benefit.

Grants of Plan-Based Awards in the Fiscal Year Ended January 2, 2010

The following table sets forth information with respect to grants of plan-based awards during the fiscal year ended January 2, 2010 to each of the named executive officers.

GRANTS OF PLAN BASED AWARDS

For Fiscal Year 2009

Name	Grant Date	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards			Estimated Possible Payouts Under Equity Incentive Plan Awards			All Other Stock Awards: Number Of Shares Or Units	All Other Option Awards: Number Of Securities Underlying Options (#)	Exercise or Base Price Of Option Awards (\$/sh)	Grant Date Fair Value And Options
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#) (1)	Maximum (#)	(#)			Awards (\$)
Timothy J. Stultz	11/17/2009					\$ 203,580		20,000			\$ 261,600
	11/17/2009								50,000	\$ 13.08	\$ 369,655
Bruce A. Crawford	11/17/2009					\$ 156,750		10,000			\$ 130,800
	11/17/2009								25,000	\$ 13.08	\$ 184,828
	9/3/2009								8,262	\$ 7.50	\$ 33,448
	2/25/2009								20,000	\$ 1.17	\$ 11,812
James P. Moniz	11/17/2009					\$ 150,000		6,000			\$ 78,480
	11/17/2009								15,000	\$ 13.08	\$ 110,897
	2/18/2009								100,000	\$ 1.20	\$ 59,730

(1) Reference CD&A Bonus section for a discussion with regard to awards earned in 2009. Actual bonuses earned are included in the Summary Compensation Table in the Stock Awards Column and were paid in the form of RSUs 2/23/2010.

Aggregated Option Exercises in Last Fiscal Year and Fiscal Year-End Option Values

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The following table sets forth the number of shares covered by both exercisable and un-exercisable stock options held by each of the named executive officers at the end of the fiscal year which ended January 2, 2010.

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR END 2009

Name	Option Awards(3) Number of Securities Underlying Unexercised Options (#)			Option Exercise Price (\$)	Option Expiration Date	Stock Awards Market Value of Shares or Units of Stock That Have Not Vested (\$)(1)(2)	
	Exercisable	Un-exercisable	Option Exercise Price (\$)			Number of Shares or Units or Stock That Have Not Vested (#)(2)	Not Vested (\$)(1)(2)
Timothy J. Stultz (4)	155,555	44,445	\$ 7.35	8/29/2017	36,666	\$ 415,426	
	36,111	63,889	\$ 0.98	11/19/2015			
	1,388	48,612	\$ 13.08	11/17/2016			
Bruce A. Crawford (5)	2,065		\$ 7.27	12/12/2012	10,000	\$ 113,300	
	3,098		\$ 7.27	5/7/2013			
	100,000		\$ 8.89	7/24/2013			
	4,864		\$ 8.55	11/30/2013			
	21,794		\$ 8.89	7/24/2016			
	6,250		\$ 6.25	6/8/2014			
	6,250		\$ 6.25	6/8/2014			
	18,055	31,945	\$ 0.98	11/19/2015			
	5,555	14,445	\$ 1.17	2/25/2016			
	2,754	5,508	\$ 7.50	9/3/2016			
694	24,306	\$ 13.08	11/17/2016				
James P. Moniz (6)		100,000	\$ 1.20	2/18/2016	6,000	\$ 67,980	
	416	14,584	\$ 13.08	11/17/2016			

- (1) Fair Market Value of Nanometrics Common Stock on December 31, 2009 was \$11.33.
- (2) RSU s generally vest at 33 and 1/3 percent per year over three years on each the first, second and third anniversary of such awards.
- (3) Generally, options granted prior to November 19, 2008 vest at a rate of 1/3rd per year on each of the first, second and third anniversary of such grant and have a term of ten years. For those grants made after November 17, 2009, options vest one thirty-sixth (1/36th) and become exercisable in equal monthly installments starting on the monthly anniversary date of the grant with a term of seven years.
- (4) Dr. Stultz received a stock option award of 200,000 options on 8/29/2007 in connection with his hiring, vesting terms of said options is 1/3rd per year on each of the first, second and third anniversary of such grant and have a term of ten years. For options granted to Dr. Stultz on November 19, 2008, and November 17, 2009 options vest one thirty-sixth (1/36th) and become exercisable in equal monthly installments starting on the monthly anniversary date of the grant with a term of seven years.
- (5) Mr. Crawford has one option grant that was awarded 9/3/2009, whereby 16,425 options were cancelled and re-granted in connection with our stock option exchange. Terms of vesting on the new grant are 1/3rd immediately vested with the remainder vesting monthly on a pro-rata basis beginning on the 13th month following the grant date.
- (6) Mr. Moniz received an award of 100,000 stock options in connection with his employment agreement. The vesting terms of that particular grant are 1/3rd vests on the anniversary date of the grant with the remainder vesting pro-rata on a monthly basis for a total of 36 months.

Option Exercises and Stock Vested

The following table shows all stock options exercised and value realized upon exercise, and all stock awards vested and value realized upon vesting, by the named executive officers during the fiscal year ended on January 2, 2010.

OPTION EXERCISES AND STOCK VESTED**For Fiscal Year 2009**

Name	Option Awards	Stock Awards
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	Number Of Shares Acquired On Exercise (#)	Value Realized On Exercise (\$ (1))	Number Of Shares Acquired on Vesting (#)	Value Realized On Vesting (\$)
Timothy J. Stultz			16,667	\$ 99,002
Bruce A. Crawford				
James P. Moniz				

- (1) The value realized equals the fair market value, (\$5.94), of Nanometrics common stock on the date of vest, (8/29/2009), multiplied by the number of shares acquired on vesting.

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

As part of Nanometrics' hiring efforts, we sometimes enter into employment agreements and severance agreements with our named executive officers that provide for certain severance benefits, including but not limited to, continuation of salary, continuation of bonus plan participation, continuation of health care benefits and acceleration of equity. The Compensation Committee decided, in its judgment, that these types of agreements are often needed to recruit executive officers to join Nanometrics and to mitigate the risks associated with leaving former employers and assuming the challenges of new executive positions.

In August 2007, Nanometrics entered into an executive severance agreement with Timothy J. Stultz, Ph.D., our President, Chief Executive Officer and a director, which provides for certain severance benefits following a termination without cause, including in connection with a change in control. Specifically, Nanometrics agrees to pay Dr. Stultz (i) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for nine months from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning one year and one day after Dr. Stultz' hire date (which was August 27, 2007) until two years from Dr. Stultz' hire date; (ii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for six months from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason during the period beginning two years and one day after Dr. Stultz' hire date or thereafter; and (iii) his annual salary, including bonuses earned or accrued, and reimbursements for his premium payments under COBRA for twelve (12) months and 100% acceleration of all equity awards, from the date of separation in the event that Dr. Stultz' employment with Nanometrics is terminated by us without cause or Dr. Stultz resigns for good reason within twelve months following a change in control, provided that Dr. Stultz executes a general release.

In August 2007 Nanometrics entered into an executive severance agreement with Bruce A. Crawford, our Chief Operating Officer, which provides for certain severance benefits following a termination without cause, including six months continuing salary at his then-effective annual rate, reimbursements for his premium payments under COBRA for twelve months and twelve months of partial equity award acceleration, provided that Mr. Crawford executes a general release.

In February 2009, Nanometrics entered into an employment agreement with James P. Moniz, our Chief Financial Officer, which provides for certain severance benefits if Mr. Moniz is terminated without cause or he resigns for good reason within twelve months of a change of control, including six months continuing salary, or \$150,000, full acceleration of all outstanding equity awards and up to twelve months of continued health benefits under COBRA (including dependents), provided that Mr. Moniz executes a general release.

In February 2010, Nanometrics entered into an amended executive severance agreement with each of Dr. Stultz and Mr. Crawford, and an amended employment agreement with Mr. Moniz. As amended, the agreements each provide that, in the event of such officer's termination without cause or resignation for good reason within twelve (12) months of a change of control, such officer shall receive (i) a payment equal to such officer's then-current annual base salary, (ii) a payment equal to the most recent bonus actually received by such officer, (iii) subject to such officer's satisfaction of certain eligibility requirements, reimbursement of COBRA premiums for a period of (1) year, and (iv) acceleration of all of such officer's outstanding unvested shares; provided that the maximum amount that such officer is entitled to receive under (i) above (base salary severance) and (ii) above (bonus severance) shall not exceed two times such officer's then-current base salary, calculated on a pre-tax basis.

The table below estimates amounts payable upon a separation as if the individuals were separated on January 2, 2010.

Name	Benefit	Not In Connection With	In Connection With A
		Change Of Control	Change Of Control
		Termination Without Cause	Termination Without Cause, For Good
		/Good Reason(\$)	Reason Or Due To
			Disability or Death (\$)
Timothy J. Stultz	Severance pay	\$ 377,000	\$ 377,000
	Equity vesting acceleration		\$ 1,253,568
	Health care benefits continuation	\$ 4,877	\$ 9,754
	Total value:	\$ 381,877	\$ 1,640,322
Bruce A. Crawford	Severance pay	\$ 313,500	\$ 313,500
	Equity vesting acceleration	\$ 611,799	\$ 611,799
	Health care benefits continuation	\$ 14,785	\$ 14,785
	Total value:	\$ 940,084	\$ 940,084

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James P. Moniz(1)	Severance pay	\$	150,000	\$	150,000
	Equity vesting acceleration			\$	1,080,980
	Health care benefits continuation	\$	14,785	\$	14,785
	Total value:	\$	164,785	\$	1,245,765

- (1) With the exception of Mr. Moniz, whose voluntary termination or termination for cause other than by change of control includes due to death or disability.

Compensation Committee Interlocks and Insider Participation

Messrs. J. Thomas Bentley, William G. Oldham and Stephen J Smith served on the Compensation Committee during fiscal year 2009. No member of such Compensation Committee is or was at any time an officer or employee of Nanometrics or any of its subsidiaries. During fiscal year 2009, none of our executive officers served on the Compensation Committee or board of directors of any other company whose executive officers serve as a member of our board of directors or Compensation Committee.

Report of the Compensation Committee of the Board of Directors

The Compensation Committee of the board of directors of Nanometrics has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management and, based on such review and discussions, the Compensation Committee recommended to the board of directors that the Compensation Discussion and Analysis be included in this proxy statement.

Members of the Compensation Committee

J. Thomas Bentley, Chairman
William G. Oldham
Stephen J Smith

Report of the Audit Committee of the Board of Directors

In accordance with its written charter adopted by the board of directors, the Audit Committee assists the board of directors in fulfilling its responsibility for oversight of the quality and integrity of the accounting, auditing and financial reporting practices of Nanometrics. During the fiscal year ended January 2, 2010, the Audit Committee met eight times, and the Audit Committee chairman, as representative of the committee, discussed the interim financial information contained in quarterly earnings announcements with the chief financial officer and independent auditors prior to public release.

The Audit Committee reviewed with the registered public accounting firm, who are responsible for expressing an opinion on the conformity of those audited financial statements with generally accepted accounting principles, their judgment as to the quality, not just the acceptability, of the Company's accounting principles and such other matters as are required to be discussed with the Audit Committee under generally accepted auditing standards (including Statements on Auditing Standards (SAS) No. 61, as amended, *Communication with Audit Committees*). The Audit Committee also received from the independent registered public accounting firm the written disclosures and the letter required by applicable requirements of the Public Company Accounting Oversight Board regarding the independent registered public accounting firm's communications with the audit committee concerning independence, and has discussed with its independent registered public accounting firm that firm's independence.

Additionally, the Audit Committee reviewed and discussed the audited financial statements of Nanometrics as of and for the fiscal year ended January 2, 2010 with management and the independent auditors. Management has the responsibility for the preparation of our financial statements and the independent auditors have the responsibility for the audit of those statements.

Based on the foregoing review and discussions with management and the independent auditors, the Audit Committee recommended to the board of directors that our audited financial statements as of and for the year ended January 2, 2010 be included in its Annual Report on Form 10-K, as amended, for the fiscal year ended January 2, 2010 for filing with the Securities and Exchange Commission.

Members of the Audit Committee

Howard A. Bain III, Chairman
J. Thomas Bentley
William G. Oldham

Audit Fees

The following table summarizes the aggregate fees that we paid or expect to pay our independent registered public accounting firm, BDO Seidman, LLP for fiscal 2009 and 2008.

	Fiscal 2009	Fiscal 2008
Audit Fees (1)	\$ 612,264	\$ 772,751
Audit Related Fees (2)	\$ 64,809	
Tax Fees		\$ 20,000
 Total	 \$ 677,073	 \$ 792,751

(1) Fees 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) Fees for audit-related services billed in fiscal 2009 consisted of consultation concerning financial accounting and reporting standards. 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.

Changes in Registrant's Certifying Accountant

On March 30, 2010, the Audit Committee dismissed BDO Seidman LLP (BDO) as the Company's independent registered public accounting firm, effective on that date. BDO's reports on the financial statements of the Company for the fiscal years ended January 2, 2010 and December 27, 2008, contained no adverse opinion or disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope or accounting principles. During the two most recent fiscal years and through the effective date of BDO's dismissal, there were no disagreements between the Company and BDO on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of BDO, would have caused BDO to make reference thereto in its reports on the Company's financial statements for such fiscal years.

On March 30, 2010, the Committee selected PricewaterhouseCoopers LLP (PwC) as the Company's new independent registered public accounting firm to audit the Company's consolidated financial statements for the fiscal year ending January 1, 2011.

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. Accordingly, the Audit Committee pre-approved all services and fees provided by BDO Seidman, LLP during the year ended January 2, 2010 and has concluded that the provision of these services is compatible with the accountants' independence.

Related Party Transaction Policy

Nanometrics has a written policy towards 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 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.

PROPOSAL 2

RATIFICATION OF APPOINTMENT OF

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the board of directors has appointed PricewaterhouseCoopers, LLP independent registered public accounting firm, to audit the consolidated financial statements of Nanometrics for the fiscal year ending January 1, 2011.

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 holders of a majority of the shares present in person or by proxy at the meeting and entitled to vote at the annual meeting do not ratify the appointment of PricewaterhouseCoopers, LLP as Nanometrics independent registered public accounting firm for the fiscal year ending January 1, 2011, the Audit Committee will consider whether it should select another independent registered public accounting firm.

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 JANUARY 1, 2011.

OTHER MATTERS

We know of no other matters to be submitted to the stockholders at the annual meeting. If any other matters properly come before the annual meeting, it is the intention of the persons named in the enclosed proxy card to vote the shares they represent as the board of directors may recommend.

BY ORDER OF THE BOARD OF DIRECTORS

/s/ BRUCE C. RHINE
Bruce C. Rhine
Chairman of the Board of Directors

Milpitas, California

April 16, 2010

NANOMETRICS INCORPORATED

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

2010 ANNUAL MEETING OF STOCKHOLDERS

May 28, 2010

The undersigned stockholder(s) of Nanometrics Incorporated, a Delaware corporation, hereby acknowledges receipt of the Notice of Annual Meeting of Stockholders and Proxy Statement, each dated April 16, 2010, and hereby appoints Bruce C. Rhine and James P. Moniz, and each of them, 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 2010 Annual Meeting of Stockholders of Nanometrics Incorporated to be held on Friday, May 28, 2010 at 9:00 a.m., local time, at the Four Seasons Hotel, 98 Jacinto Blvd., Austin, Texas, 78701 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 THE PROPOSALS LISTED ON THE PROXY CARD.

(continued and to be signed on the reverse side)

