NANOMETRICS INC
Form PRER14A
August 01, 2005

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
SCHEDULE 14A

PROXY STATEMENT PURSUANT TO SECTION 14(A) OF THE SECURITIES EXCHANGE ACT OF 1934 (AMENDMENT NO. 1)

Filed by the Registrant [X]
Filed by a party other than the Registrant [ ]

Check the appropriate box:

[X] Preliminary Proxy Statement

[ ] Definitive Proxy Statement

[ ] Confidential,for Use of the Commission Only(as permitted by Rule14a-6(e)(2))

[ ] Definitive Additional Materials

[ ] Soliciting Material Pursuant to Rule 14a-11(c) or Rule 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):
[X] No fee required.
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(1) Title of each class of securities to which transactions applies:
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NANOMETRICS INCORPORATED

NOTICE OF ANNUAL MEETING OF SHAREHOLDERS

TO THE SHAREHOLDERS OF NANOMETRICS INCORPORATED:

NOTICE IS HEREBY GIVEN that the annual meeting of shareholders of Nanometrics Incorporated, a California corporation (the "Company"), will be held on Friday, August 26, 2005 at 1:00 p.m., local time, at the Company's principal offices located at 1550 Buckeye Drive, Milpitas, California 95035. At the annual meeting, you will be asked to consider and vote upon the following:

1. A proposal to elect seven candidates nominated by the board of directors to serve until the next annual meeting of shareholders at which their respective successors are elected and qualified, or until the earlier of their death, resignation or removal.

2. A proposal to approve the reincorporation of the Company under the laws of the State of Delaware through a merger with Big League Merger Corporation, a wholly-owned subsidiary of the Company.

3. Proposals to approve various governance-related provisions in the form of certificate of incorporation of the Company to be effective upon the completion of the reincorporation merger consisting of the following proposals:

- 3A--a proposal to approve a provision limiting the Company's stockholders' right to call special meetings of stockholders;
- 3B--a proposal to approve a provision limiting the Company's stockholders' ability to act by written consent;
- 3C--a proposal to approve a provision requiring a super-majority vote of the Company's stockholders to amend certain provisions of its certificate of incorporation;
- 3D--a proposal to approve a provision requiring a super-majority vote of the Company's stockholders to amend certain provisions of the Company's bylaws;
- 3E--a proposal to approve a provision limiting the Company's stockholders' right to remove directors from the board without cause;
- 3F--a proposal to approve the classification of the board of directors into separate classes with staggered terms; and
- 3G--a proposal to approve a provision limiting cumulative voting rights in connection with the election of directors.

4. A proposal to approve the adoption of the Company's 2005 Equity Incentive Plan (the "Plan") and the reservation of 1,200,000 shares of common stock for issuance thereunder.

5. A proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2005.

6. 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 shareholders.

Only shareholders of record at the close of business on July 12, 2005 are entitled to notice of and to vote at the annual meeting and any postponements or adjournments thereof.

All shareholders 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 shareholder of record attending the annual meeting may vote in person even if that shareholder previously returned a proxy card for the annual meeting.

BY ORDER OF THE BOARD OF DIRECTORS,

Vincent J. Coates
Chairman of the Board of Directors and Secretary

Milpitas, California
August __, 2005

NANOMETRICS INCORPORATED

PROXY STATEMENT

INFORMATION CONCERNING SOLICITATION AND VOTING

General

This proxy statement is being provided to the shareholders of Nanometrics Incorporated (the "Company") as part of a solicitation of proxies by the board of directors for use at the 2005 annual meeting of shareholders. This proxy statement provides shareholders with information they need to know to be able to vote or instruct their vote to be cast at the annual meeting.

Date, Time and Place

The annual meeting will be held on Friday, August 26, 2005 at 1:00 p.m., local time, at the Company's principal offices located at 1550 Buckeye Drive, Milpitas, California 95035.

Purpose; Other Matters

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

1. A proposal to elect seven director nominees to the board of directors to serve until the next annual meeting of shareholders at which their respective successors are elected and qualified, or until the earlier of their death, resignation or removal.

2. A proposal to approve the reincorporation of the Company under the laws of the State of Delaware through a merger with Big League Merger Corporation, a wholly-owned subsidiary of the Company.

3. Proposals to approve various governance-related provisions in the form of certificate of incorporation of the Company to be effective upon the completion of the reincorporation merger consisting of the following proposals:

- 3A--a proposal to approve a provision limiting the Company's

stockholders' right to call special meetings of stockholders;

- 3B--a proposal to approve a provision limiting the Company's stockholders' ability to act by written consent;
- 3C--a proposal to approve a provision requiring a super-majority vote of the Company's stockholders to amend certain provisions of its certificate of incorporation;
- 3D--a proposal to approve a provision requiring a super-majority vote of the Company's stockholders to amend certain provisions of the Company's bylaws;
- 3E--a proposal to approve a provision limiting the Company's stockholders' right to remove directors from the board without cause;
- 3F--a proposal to approve the classification of the board of directors into separate classes with staggered terms; and
- 3G--a proposal to approve a provision limiting cumulative voting rights in connection with the election of directors.

4. A proposal to approve the adoption of the Company's 2005 Equity Incentive Plan (the "Plan") and the reservation of 1,200,000 shares of common stock for issuance thereunder.

5. A proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2005.

Shareholders will also be asked to consider and vote upon any other business as may properly come before the annual meeting or any adjournments or postponements of the annual meeting. The Company does 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 proposal to elect seven candidates nominated by the board of directors to serve until the next annual meeting of shareholders at which their respective successors are elected and qualified, or until the earlier of their death, resignation or removal;
- "FOR" the proposal to approve the reincorporation of the Company under the laws of the State of Delaware through a merger with Big League Merger Corporation, a wholly-owned subsidiary of the Company;

- "FOR" the proposals to approve the governance-related provisions in the Company's certificate of incorporation to be effective upon completion of the reincorporation merger;

- "FOR" the proposal to approve the adoption of the Plan and the reservation of 1,200,000 shares of common stock for issuance thereunder; and

- "FOR" the proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2005.

Record Date; Outstanding Shares; Voting Rights

Only holders of record of common stock at the close of business on the record date for the annual meeting, July 12, 2005, are entitled to notice of and to vote at the annual meeting. As of the record date, there were 12,793,207 shares of common stock outstanding and entitled to vote at the annual meeting, held by approximately 140 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 except with respect to the election of directors.

The candidates receiving the seven highest vote totals will be elected to the board of directors. Every shareholder voting for the election of the board of directors may (i) cumulate such shareholder's votes and give any one candidate a number of votes equal to the number of directors to be elected multiplied by the number of shares that such shareholders holds on the record date for the annual meeting, or (ii) distribute such shareholder's votes on the same principle among as many candidates as the shareholder may select, provided that votes cannot be cast for more than seven candidates. However, no shareholder will be entitled to cumulate votes for a candidate unless the candidate's name has been placed in nomination prior to the voting and the shareholder, or any other shareholder, has given notice at the annual meeting prior to the voting of the intention to cumulate votes.

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

Admission to the Annual Meeting

Only shareholders, their designated proxies and guests of the Company 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 shareholders is necessary to hold a valid annual meeting of shareholders. 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.

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

Proposal 1

The candidates for the board of directors receiving the seven highest vote totals will be elected to serve as directors of the Company.

Proposal 2

Approval of the reincorporation merger will require the affirmative vote of the holders of a majority of the outstanding shares of common stock entitled to vote on the record date.

2

Proposals 3A-G

Under applicable state law, shareholder approval of the reincorporation merger is sufficient to implement the proposed governance-related provisions in the certificate of incorporation of the Company. Under rules promulgated by the Securities and Exchange Commission, however, we are required to present each of the proposed governance-related provisions as a separate proposal for shareholder approval. Accordingly, if we complete the reincorporation merger, we have determined that we will not implement the proposed governance-related provisions unless they are independently approved by the affirmative vote of the holders of a majority of the shares of the Company's common stock represented and voting on each proposed governance-related provision at the annual meeting.

Proposal 4

Approval of the Plan and the reservation of shares of common stock for issuance thereunder will require the affirmative vote of the holders of a majority of the shares of common stock represented in person or by proxy and voting at the annual meeting.

Proposal 5

Approval by the shareholders 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 shareholders. If holders of a majority of the common stock represented and voting at the annual meeting do not ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2005, the audit committee will consider whether it should select another independent registered public accounting firm.

Voting

General

Shareholders 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. Shareholders 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, the

Company recommends 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 the Company to vote your shares, your shares will be voted:

- "FOR" the proposal to elect seven candidates nominated by the board of directors to serve until the next annual meeting of shareholders at which their respective successors are elected and qualified, or until the earlier of their death, resignation or removal;

- "FOR" the proposal to approve the reincorporation of the Company under the laws of the State of Delaware through a merger with Big League Merger Corporation, a wholly-owned subsidiary of the Company;

- "FOR" the proposals to approve the governance-related provisions in the Company's certificate of incorporation to be effective upon completion of the reincorporation merger;

- "FOR" the proposal to approve the adoption of the Plan and the reservation of 1,200,000 shares of common stock for issuance thereunder; and

- "FOR" the proposal to ratify the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2005.

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 the Company's corporate secretary a signed notice of revocation;

3

- granting the proxy holders a new, later-dated proxy, which must be signed and delivered to the Company's 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.

Abstentions and Broker Non-Votes

An abstention occurs when a shareholder attends a meeting, either in person or by proxy, but abstains from voting. While there is no definitive statutory or case law authority in California as to the proper treatment of abstentions, the Company believes that abstentions should be counted for purposes of determining both (i) the presence or absence of a quorum for the transaction of business and (ii) the total number of shares of common stock represented and voting with respect to a proposal. In the absence of controlling authority to the contrary, the Company intends to treat abstentions in this manner.

"Broker non-votes" are shares held by a broker or other nominee that are represented at the annual meeting, but with respect to which the broker or nominee is not instructed by the beneficial owner of the shares to vote on the particular proposal and the broker does not have discretionary voting power on the proposal. Broker non-votes will be counted for purposes of determining the presence or absence of a quorum but will not be counted for purposes of determining the number of shares represented and voting with respect to a proposal.

For proposal 1, neither abstentions nor broker non-votes will have any effect on the election of the seven directors.

For proposal 2, abstentions and broker non-votes will have the same effect as voting against approval of the reincorporation merger.

For proposals 3A-3G, neither abstentions nor broker non-votes will have any effect on the approvals of the governance-related proposals.

For proposal 4, abstentions will have the same effect as voting against the approval of the Plan and the reservation of shares of common stock for issuance thereunder; broker non-votes will have no effect.

For proposal 5, abstentions will have the same effect as voting against ratification of the appointment of BDO Seidman, LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2005; broker non-votes will have no effect.

Proxy Solicitation

The Company is soliciting proxies for the annual meeting from its shareholders. The Company will bear the entire cost of soliciting proxies from the shareholders. In addition to the solicitation of proxies by mail, the Company will request that brokers, banks and other nominees send proxies and proxy materials to the beneficial owners of common stock held by them and secure their voting instructions, if necessary. The Company will reimburse those record holders for their reasonable expenses. The Company also may use several of its regular employees, who will not be specially compensated, to solicit proxies from shareholders, either personally or by telephone, Internet, telegram, facsimile or special delivery letter.

Assistance

If you need assistance in completing your proxy card or have questions regarding the annual meeting, please contact Investor Relations at (408) 435-9600 or write to Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035, Attn: Investor Relations.

Shareholder Proposals

The attached proxy card grants the proxy holders discretionary authority to vote on any matter raised at the 2005 Annual Meeting. Shareholders are entitled to present proposals for action at the Company's annual meetings. For any proposal to be considered for inclusion in the Company's proxy statement and form of proxy for submission to the shareholders at an annual meeting, 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. Typically, proposals must be received by the Company no later than 120 calendar days before the date the proxy statement was released to shareholders in connection with the previous year's annual meeting. If the Company changes the date of its annual meeting to a date more than 30 days from the date of the previous year's annual meeting, than the deadline for receipt of shareholder proposals will be changed to a reasonable time before the Company begins to print and mail its proxy. The submission of a shareholder proposal does not guarantee that it will be included in the Company's proxy statement. Additionally, shareholder proposals to be considered at an annual meeting outside the processes of Rule 14a-8 (which are not intended to be included in the proxy materials for such annual meeting) must be delivered to or mailed and received at the Company's executive offices at least 45 days before the date that the proxy statement was released to shareholders in connection with the previous year's annual meeting.

Material Proceedings

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

5

PROPOSAL 1
ELECTION OF NANOMETRICS' DIRECTORS

Nominees

At the 2005 annual meeting of shareholders, unless otherwise instructed, the proxy holders will vote the proxies received by them for the seven nominees named below, each of whom is presently a director of the Company. In the event that any nominee is unable or declines 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. The proxy holders intend to vote all proxies received by them in such a manner and in accordance with cumulative voting as will ensure the election of as many of the nominees listed below as possible and, in such event, the specific nominees to be voted for will be determined by the proxy holders. The Company is not aware of any nominee who will be unable or will decline to serve as a director

The names of the seven nominees and certain information about them are set forth below:

Name of Nominee	Age	Director Since
Vincent J. Coates	80	1975
John D. Heaton	45	1995
Edmond R. Ward	65	1999

William G. Oldham	66	2000
Stephen J Smith	58	2004
J. Thomas Bentley	55	2004
Norman V. Coates	55	2004

Vincent J. Coates has been Chairman of the Board since the Company was founded in 1975. He has been the Company's Secretary since February 1989. He also served as Chief Executive Officer through April 1998 and President from the Company's founding through May 1996, except for the period of January 1986 through February 1987 when he served exclusively as Chief Executive Officer. Mr. Coates has also served as Chairman of the Board of Nanometrics Japan Ltd., a subsidiary of the Company, since its inception in November 1984. Prior to his employment at the Company, Mr. Coates co-founded Coates and Welter Instrument Corporation, a designer of electron microscopes, the assets of which were subsequently acquired by the Company. Mr. Coates also spent over twenty years working in engineering, sales and international operations for the Perkin-Elmer Corporation, a manufacturer of analytical instruments. In 1995, he received an award which recognized his contribution to the industry from Semiconductor and Equipment and Materials International, an industry trade organization.

John D. Heaton has served as a director of the Company since July 1995. Since April 1998, he has been Chief Executive Officer of the Company. From May 1996 to April 1998, he served as the Company's President and Chief Operating Officer. Mr. Heaton has also served as President of Nanometrics Japan Ltd., a subsidiary of the Company, since January 1998. Beginning in 1978, Mr. Heaton served in various technical positions at National Semiconductor, a semiconductor manufacturer, and prior to joining the Company in 1990.

Edmond R. Ward has served as a director of the Company since July 1999. Beginning in January 2002, Mr. Ward has served as Chief Technical Officer of Unity Semiconductor, a semiconductor design and manufacturing company. Since April 1999, Mr. Ward has been a General Partner of Virtual Founders, a venture capital firm. From April 1992 to June 1997, Mr. Ward was the Vice President of Technology at Silicon Valley Group, Inc., a supplier of wafer processing equipment.

William G. Oldham has served as a director of the Company since June 2000. Since 1964, Mr. Oldham has been a faculty member at the University of California, Berkeley, where he researches EUV and Maskless Lithography and, since 1996, has been the Director of the DARPA/SRC Research Network for Advanced Lithography. He has served as a consultant in various intellectual property matters and serves on the board of directors of Cymer, Inc., a supplier of light sources for deep ultraviolet (DUV) photolithography systems used in the manufacturing of semiconductors.

Stephen J Smith has served as a director of the Company 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, where he researches brain development and function with special interests in the dynamic and structural aspects of synapse and circuit formation and synaptic plasticity. Dr. Smith is the author of numerous research articles in the fields of cellular and molecular neuroscience.

J. Thomas Bentley has served as a director of the Company since April 2004.

Mr. Bentley is a co-founder of Alliant Partners, a leading merger and acquisition firm for emerging and mid-market technology companies. For the past 10 years, Mr. Bentley has worked with some of Alliant's largest clients on their strategic acquisitions and divestitures. His expertise is in financial, tax and accounting structuring of merger transactions. Mr. Bentley holds a Master of Science degree in Management from M.I.T. and currently serves as a senior advisor to Alliant Partners.

Norman V. Coates served as a director of the Company from May 1988 through June 2001. He was re-appointed to the board of directors on June 30, 2004. He has operated Gem of the River Produce, a farming and produce packing operation in Orleans, California, as a sole proprietor since 1978. He has also been manager of the Boise Creek Farm operation since 1985 and a manager of Coates Vineyards since 1997.

The candidates for the board of directors receiving the seven highest vote totals will be elected to serve as directors of the Company. The directors elected at the annual meeting will serve until the next annual meeting or until such director's successor has been elected or qualified.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE SHAREHOLDERS VOTE "FOR" THE SEVEN NOMINEES SET FORTH HEREIN.

Security Ownership of Management and Certain Beneficial Owners

The following table sets forth beneficial ownership of common stock of the Company as of July 12, 2005, the record date, by each director or nominee, by each of the Named Officers (as defined in the section of this proxy statement entitled "Compensation of Executive Officers" beginning on page 13), by all directors and Named Officers as a group, and by all persons known to the Company to be the beneficial owners of more than 5% of the Company's common stock. Quentin Wright and Michael Weber are not listed on the table below because they did not join the Company in their capacities as executive officers until after January 1, 2005 and are not Named Officers. Unless otherwise indicated, all persons named below can be reached at Nanometrics Incorporated, 1550 Buckeye Drive, Milpitas, California 95035.

Name of Beneficial Owner	Number of S of Common S Beneficia Owned(1
Vincent J. Coates(2)	3,376,27
Artemis Investment Management LLC(3) 437 Madison Avenue New York, New York 10022	881,80
Dimensional Fund Advisors Inc.(4) 1299 Ocean Avenue 11th Floor Santa Monica, CA 90401	913,14
John D. Heaton(5)	365,00
Edmond R. Ward(6)	32,00
William G. Oldham(7)	30,00
Paul B. Nolan(8)	28,33

Roger Ingalls, Jr. (9)	22,66
Stephen J Smith (10)	3,33
J. Thomas Bentley (11)	3,33
Norman V. Coates (12)	3,33
All Named Officers and directors as a group (nine(9)persons) (13)	5,659,22

* Represents less than 1% of outstanding shares of common stock.

(1) Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission. The number of shares beneficially owned by a person includes shares of common stock subject to options held by that person that are currently exercisable or exercisable within 60 days of July 12, 2005. Such shares issuable pursuant to such options are deemed outstanding for computing the percentage ownership of the person holding such options but are not deemed outstanding for the purposes of computing the percentage ownership of each other person.

(2) Includes 3,376,154 shares of common stock held of record by the Vincent J. Coates Separate Property Trust, U/D/T dated August 7, 1981, for which Mr. Coates acts as trustee.

(3) According to a Schedule 13G filed on February 10, 2004, Artemis Investment Management LLC may be deemed to be the beneficial owner of 881,800 shares of common stock.

(4) According to a Schedule 13G/A filed on February 9, 2005, Dimensional Fund Advisors Inc. may be deemed to be the beneficial owner of 913,148 shares of common stock.

(5) Includes 365,000 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(6) Includes 30,000 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(7) Includes 30,000 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(8) Includes 23,334 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

8

(9) Includes 22,667 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(10) Includes 3,333 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(11) Includes 3,333 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(12) Includes 3,333 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

(13) Includes 481,000 shares of common stock issuable upon exercise of outstanding options exercisable within 60 days of July 12, 2005.

Board Meetings and Committees

The board of directors met (or acted by written consent) a total of nine (9) times during fiscal year ended January 1, 2005. During the fiscal year ended January 1, 2005, all incumbent directors attended at least 75% of meetings of the board of directors and meetings of committees, if any, upon which such directors served. The standing committees of the board of directors include an audit committee, a compensation/stock option committee and a nominating/governance committee.

The board of directors has determined that all of its directors meet the independence requirements of the Nasdaq National Market, with the exception of Vincent J. Coates, Norman V. Coates and John D. Heaton.

It is the policy of the Company to require its directors to attend its annual meetings absent a valid reason, such as a schedule conflict. All of the directors who served on the board of directors for the entire fiscal year attended the 2004 annual meeting of shareholders.

Audit Committee

The audit committee of the board of directors reviews and monitors the Company's financial reporting as well as its internal and external audits, including among other things, the Company's internal audit and control functions, the results and scope of the annual audit and other services provided by the Company's independent auditors, and the Company's compliance with legal matters that may have a significant impact on the Company's financial reports. In addition, the audit committee has the responsibility to consider and recommend the employment of, and to review fee arrangements with, the Company's independent auditors. The audit committee also monitors transactions between the Company and its officers, directors and employees for any potential conflicts of interest. The audit committee met (or acted by written consent) five (5) times during the fiscal year ended January 1, 2005.

The members of the audit committee during the fiscal year ended January 1, 2005 were William Oldham, Nathaniel Brenner (through March 2004), Edmond R. Ward and J. Thomas Bentley (beginning in April 2004). Mr. Brenner, the audit committee's financial expert in the fiscal year ended January 3, 2004, resigned his position as director as well as his committee assignments effective as of March 2004. At the recommendation of the nominating/governance committee, the board of directors appointed J. Thomas Bentley to the audit committee as of May 26, 2004. Mr. Bentley was appointed by the board of directors to serve as the audit committee's financial expert and chairman.

Each member of the Company's audit committee is an "independent director" as that term is defined under the applicable Nasdaq National Market listing standards. The audit committee has adopted a written charter, which is available on the Company's website at www.nanometrics.com.

Compensation/Stock Option Committee

The compensation/stock option committee reviews and makes recommendations to the board of directors regarding the Company's compensation policy and all forms of compensation to be provided to certain of the executive officers of the Company, including the chief executive officer.

The compensation/stock option committee is responsible for approving the grant of stock options to the Company's employees under the Company's 2000

Employee Stock Option Plan and 2002 Nonstatutory Stock Option Plan.

The members of the compensation/stock option committee serving in the fiscal year ended January 1, 2005 were Edmond Ward, J. Thomas Bentley, Stephen J Smith and Nathaniel Brenner. Mr. Ward was appointed as chairman of the compensation/stock option committee by the board of directors. As indicated above, Mr. Brenner resigned his position as director as well as his committee assignments effective as of March 2004. The compensation/stock option committee met (or acted by written consent) seven (7) times during fiscal 2004. The compensation/stock option committee has adopted a written charter, which is available on the Company's website at www.nanometrics.com.

Nominating/Corporate Governance Committee

The Company maintains a standing nominating/corporate governance committee that assists the board of directors in identifying and qualifying candidates to join the board of directors and addressing governance issues. All members of the nominating committee are independent. The nominating 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 committee will consider recommending various potential candidates to fill such vacancies. Candidates may come to the attention of the nominating committee through its current members, shareholders or other persons. The board of directors may consider properly submitted shareholder nominations for candidacy. Nominees may be submitted by shareholders in accordance with the shareholder communication policy described below.

The nominating/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 the Company and be willing and able to commit the necessary time for board of directors and committee service.

The nominating/corporate governance 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/corporate governance committee consists of William Oldham and Stephen Smith. Mr. Oldham was appointed as chairman of the nominating/corporate governance committee by the board of directors. The nominating/corporate governance committee met once in the fiscal year ended January 1, 2005 and has adopted a written charter, which is available on the Company's website at www.nanometrics.com.

Shareholder Communication Policy

The board of directors has established a formal process for shareholders to send communications to the board of directors or to individual directors. The names of all directors are available to shareholders in this proxy statement. If the Company receives any shareholder communication intended for the full board of directors or any individual director, the Company 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 the Company has the authority to discard the communications or take appropriate legal action regarding the communication.

Compensation/Stock Option Committee Interlocks and Insider Participation

No member of the compensation/stock option committee of the Company's board of directors serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of the Company's board of directors or compensation/stock option committee.

Compensation of Directors

Directors who are not also employees of the Company receive an annual retainer fee of $5,000, plus $1,000 for each board and committee meeting attended. Directors are also eligible to participate in the Company's Directors' Stock Option Plan. Each audit committee member receives an additional $3,000 annual retainer and $500 for attending

10

quarterly earnings release conference calls. Additionally, the audit committee chairman receives an incremental $2,000 retainer for serving in such capacity.

Compensation of Executive Officers

The following table sets forth the compensation paid by the Company during the past three fiscal years to (i) the chief executive officer, (ii) each of the four most highly compensated executive officers (or such lesser number of executive officers as the Company may have) of the Company not serving as chief executive officer and (iii) up to an additional two individuals that would have been included under item (ii) but for the fact that the individuals were not serving as executive officers as of January 1, 2005, all of whom are collectively referred to as the "Named Officers". Quentin Wright and Michael Weber are not listed on the table below because they did not join the Company in their capacities as executive officers until after January 1, 2005.

Summary Compensation Table

	Annual Compensation		
Name	Fiscal Year	Salary	B
John D. Heaton	2004	$ 341,800	$
President and Chief Executive Officer	2003	342,800	
	2002	343,800	
Vincent J. Coates	2004	$ 204,800	
Chairman of the Board and Secretary	2003	204,800	
	2002	204,800	
Roger Ingalls, Jr.	2004	$ 195,265	$
Senior Vice President of Standalone Sales	2003	198,965	
	2002	201,834	
Paul B. Nolan	2004	$ 183,055	$
Vice President and Chief Financial Officer	2003	179,050	
	2002	162,234	

Stock Options Granted in the Fiscal Year Ended January 1, 2005

The following table sets forth information with respect to stock options granted during the fiscal year ended January 1, 2005 to each of the Named Officers. Quentin Wright and Michael Weber are not listed on the table below because they did not join the Company in their capacities as executive officers until after January 1, 2005. All options were granted under the Company's 2000 Stock Option Plan. The potential realizable value amounts in the last two columns of the following chart represent hypothetical gains that could be achieved for the respective options if exercised at the end of the option term. The assumed 5% and 10% annual rates of stock price appreciation from the date of grant to the end of the option term are provided in accordance with rules of the Securities and Exchange Commission and do not represent the Company's estimate or projection of the future common stock price. Actual gains, if any, on stock option exercises are dependent on the future performance of the common stock, overall market conditions and the option holder's continued employment through the vesting period.

Option Grants in Last Fiscal Year

	Individual Grants			
Name	Number of Securities Underlying Options Granted (#) (1)	% of Total Options Granted to Employees in Fiscal Year (2)	Exercise Price ($/Sh)	Expiration Date
John D. Heaton	100,000	22%	$ 12.02	5/26/11
Vincent J. Coates	0	0	--	
Roger Ingalls, Jr.	5,000	1.1%	10.37	8/23/11
Paul B. Nolan	0	0	--	

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(1) All options granted to the Named Officers in fiscal 2004 were granted at exercise prices equal to the fair market value of the Company's common stock on the dates of grant. Historically, options granted become exercisable at the rate of 33% on the first anniversary date of the option grant and 33% of the total number of option shares each full year thereafter, such that full vesting occurs three years after the date of grant. Options (whether vested or unvested) expire after 7 years or 90 days after termination of employment.

(2) Based on 453,550 options granted during the fiscal year ended January 1, 2005.

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

The following table sets forth the number of shares covered by both exercisable and unexercisable stock options held by each of the Named Officers

at January 1, 2005. Quentin Wright and Michael Weber are not listed on the table below because they did not join the Company in their capacities as executive officers until after January 1, 2005. As indicated below, two (2) Named Officers, John D. Heaton and Paul B. Nolan, exercised stock options during the fiscal year ended January 1, 2005.

Name	Shares Acquired on Exercise(#)	Value Realized($) (1)	Number of Securities Underlying Unexercised Options at Fiscal Year-End (#)	
			Exercisable	Unexercisable
John D. Heaton	100,000	$ 674,000	219,583	402,917
Vincent J. Coates	--	--	--	--
Roger Ingalls, Jr.	--	--	15,750	20,750
Paul B. Nolan	26,666	213,594	16,666	16,668

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(1) The value realized upon exercise is (i) the fair market value of the Company's common stock on the date of exercise, less the option exercise price per share, multiplied by (ii) the number of shares underlying the options exercised.
(2) The value of unexercised options is (i) the fair market value of the Company's common stock on December 31, 2004 ($16.12 per share), less the option exercise price of in-the-money options, multiplied by (ii) the number of shares underlying such options.

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

Pursuant to the terms of an agreement between the Company and Vincent J. Coates, the Chairman of the Board of the Company, dated May 1, 1985, as amended and restated in August 1996 and April 1998, the Company is obligated to continue to pay Mr. Coates his salary and benefits for five years from the date of his resignation in the event Mr. Coates is required to resign as Chairman of the Board under certain circumstances, including a change of control.

12

In April 1998, the Company entered into an agreement with John D. Heaton pursuant to which the Company agreed to pay Mr. Heaton his annual salary (excluding bonuses) for a period of one year from the date that he is required or requested for any reason not involving good cause, including a change of control, to involuntarily relinquish his positions with the Company as President, Chief Executive Officer and director. If Mr. Heaton leaves the Company voluntarily, or if he is asked to leave under certain circumstances, no such severance payment is required.

In March 1995, the Company entered into an agreement with Roger Ingalls, Jr. pursuant to which the Company agreed to pay Mr. Ingalls his annual salary (excluding bonuses) for a period of one hundred twenty (120) days from the date he is terminated without cause.

Equity Compensation Plan Information

All of the Company's equity compensation plans except the 2002 Non Statutory Stock Option Plan were approved by the Company's shareholders. The following table sets forth, for all of the Company's existing equity compensation plans, the number of outstanding option grants and the number of shares remaining available for issuance as of the fiscal year ended January 1, 2005.

	Number of Securities to be Issued Upon Exercise of Outstanding Options	Weigh Avera Exercise of Outst Optio
Equity Compensation Plans Approved by Security Holders	1,555,629	$ 11.
Equity Compensation Plans Not Approved by Security Holders	1,076,646	$ 8.

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(1) Excludes securities to be issued upon exercise of outstanding options.

Certain Relationships

Vincent J. Coates is the father of Norman V. Coates. There are no other family relationships between any of the foregoing nominees or between any such nominees and any of the executive officers of the Company.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Exchange Act requires the Company's executive officers and directors, and persons who own more than ten percent of a registered class of the Company's equity securities, to file reports of ownership and changes in ownership with the Securities and Exchange Commission and the Nasdaq National Market. Executive officers, directors and greater than ten percent shareholders are required by Securities and Exchange Commission regulations to furnish the Company with copies of all Section 16(a) forms that they file. Based solely on its review of the copies of such forms received by it or written representations from certain reporting persons, the Company believes that, with the exception of Roger Ingalls, Jr., during the fiscal year ended January 1, 2005, its executive officers, directors and greater than ten percent shareholders complied with all applicable filing requirements. Mr. Ingalls failed to timely report an option grant on Form 4.

Report of the Audit Committee of the Board of Directors

The following is the report of the audit committee of the board of directors describing its review of materials and determinations with respect to its auditors and financial statements for the fiscal year ended January 1, 2005. The information contained in this report shall not be deemed to be "soliciting material" or to be "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that the Company specifically incorporates it by reference into such filing.

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 the Company. During the fiscal year ended January 1, 2005, the audit committee met (or acted by written consent) five (5) 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 received from the Company's independent auditors a formal written statement, consistent with Independence Standards Board Standard No. 1, "Independence Discussions with Audit Committees," which describes all relationships between the auditors and the Company that, in the auditors' professional opinion, might reasonably be thought to bear on the auditors' independence. The audit committee discussed with the auditors these relationships and satisfied itself as to the auditors' independence.

The audit committee also discussed and reviewed with the independent auditors all communications required by the Public Company Accounting Oversight Board (the "PCAOB") standards, including those described in Statement on Auditing Standards No. 61, as amended, "Communication with Audit Committees" and, with and without management present, discussed and reviewed the results of the independent auditors' Audit of the Company's financial statements.

Additionally, the audit committee reviewed and discussed the audited financial statements of the Company as of and for the fiscal year ended January 1, 2005 with management and the independent auditors. Management has the responsibility for the preparation of the Company's 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 the Company's audited financial statements as of and for the year ended January 1, 2005 be included in its Annual Report on Form 10-K for the fiscal year ended January 1, 2005 for filing with the Securities and Exchange Commission. The audit committee also recommended the appointment, subject to shareholder approval, of the independent auditors and the board of directors concurred in such recommendation.

Members of the Audit Committee

J. Thomas Bentley, Chairman
Edmond R. Ward
William G. Oldham

14

Report of the Compensation/Stock Option Committee of the Board of Directors

The following is the report of the compensation/stock option committee of the board of directors describing compensation policies and rationales applicable to certain of its executive officers with respect to the compensation paid to such executive officers for the fiscal year ended January 1, 2005. The information contained in such report shall not be deemed to be "soliciting material" or to be "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that the Company specifically incorporates it by reference into such filing.

General. The compensation/stock option committee is responsible for making

recommendations to the board of directors with respect to cash compensation levels for certain of the Company's executive officers. During fiscal year ended January 1, 2005, the compensation/stock option committee also was responsible for determining levels of equity-based compensation for the Company's employees.

Compensation Philosophy. The compensation/stock option committee makes recommendations as to the salaries of certain of the executive officers by considering (i) the salaries of executive officers in similar positions at comparably-sized peer companies, (ii) the Company's financial performance over the past year based upon revenues and operating results and (iii) the achievement of individual performance goals related to each executive officer's duties and areas of responsibility. The compensation/stock option committee makes recommendations as to the levels of cash bonuses awarded to certain of the Company's executive officers and views such bonuses as being an integral part of its performance based compensation program. Such bonuses are based on the Company's profits and are determined as a percentage of the officer's salaries.

Equity-Based Compensation. The compensation/stock option committee views stock options as an important part of its long-term, performance-based compensation program. The compensation/stock option committee grants stock options to all employees of the Company under its 2000 Stock Option Plan and 2002 Nonstatutory Stock Option Plan based upon the committee's estimation of each employee's contribution to the long-term growth and profitability of the Company. The 2000 Stock Option Plan is intended to provide additional incentives to the executive officers to maximize shareholder value. Options are granted under the 2000 Stock Option Plan and the 2002 Nonstatutory Stock Option Plan at the then-current market price and are generally subject to three-year vesting periods to encourage key employees to remain with the Company.

Compensation of the Chief Executive Officer. The compensation/stock option committee has reviewed all components of the chief executive officer's compensation, including salary, bonus, equity, stock options, and the obligations under the Company's change of control severance agreement with Mr. Heaton.

Based on this review, the compensation/stock option committee found Mr. Heaton's total compensation (and, in the case of the change of control severance agreement, potential payout) in the aggregate to be reasonable and not excessive. Furthermore, although Mr. Heaton made valuable contributions to the Company during fiscal year ended January 3, 2004, in light of economic conditions, the compensation/stock option committee determined that an increase to the base salary of the chief executive officer would not be appropriate. It should be noted that when the compensation/stock option committee considers any component of the chief executive officer's total compensation, the aggregate amounts and mix of all the components, including accumulated (realized and unrealized) option gains are taken into consideration in the compensation/stock option committee's decisions.

Section 162(m). The Company intends that awards granted under the Company's 2000 Stock Option Plan and 2002 Nonstatutory Stock Option Plan be deductible by the Company under Section 162(m) of the Internal Revenue Code of 1986, as amended.

Members of the Compensation/Stock Option Committee

Edmond Ward, Chairman
J. Thomas Bentley
Stephen J Smith

Stock Performance Graph

The following graph compares the cumulative total return to shareholders of the Company's common stock from December 31, 1999 through December 31, 2004 to the cumulative total return over such period of (i) the Nasdaq Stock Market (U.S.) Index and (ii) the RDG Technology Composite Index. The results shown assume that $100 was invested on December 31, 1999 in the Company's common stock and in each of the other two indices with any dividends reinvested. Information about RDG Technology Composite Index may be obtained at the Research Data Group, Inc. website address www.researchdatagroup.com/ComponentsTech.htm or by calling Research Data Group at (415) 643-6000.

The information contained in the performance graph shall not be deemed to be "soliciting material" or to be "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that the Company specifically incorporates it by reference into such filing.

COMPARISON OF 5-YEAR CUMULATIVE TOTAL RETURN AMONG NANOMETRICS INCORPORATED, THE NASDAQ STOCK MARKET (U.S.) INDEX AND THE RDG TECHNOLOGY COMPOSITE INDEX

[GRAPHIC OMITTED][GRAPHIC OMITTED]
(Performance Graph)

16

"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 shareholders sharing the same address by delivering a single proxy statement addressed to those shareholders. This process, which is commonly referred to as "householding," potentially provides extra convenience for shareholders and cost savings for companies. The Company and some brokers household proxy materials, delivering a single proxy statement to multiple shareholders sharing an address unless contrary instructions have been received from the affected shareholders. Once you have received notice from your broker or the Company that the broker or the Company will be householding materials to your address, householding will continue until you are notified otherwise or until you revoke your consent. Upon written or oral request to the Investor Relations department of the Company, by mail at 1550 Buckeye Drive, Milpitas, California, 95035 or by telephone at (408) 435-9600, the Company will promptly deliver a copy of its proxy statement to a shareholder if that shareholder shares an address with another shareholder to which a single copy of the proxy statement was delivered. A shareholder may notify the Company as described above if the shareholder wishes to receive a separate copy of the proxy statement in the future or, alternatively, if the shareholder wishes to receive a single copy of the materials instead of multiple copies.

17

PROPOSAL 2
REINCORPORATION FROM CALIFORNIA INTO DELAWARE
(THE REINCORPORATION MERGER)

General

The board of directors, by a unanimous vote at a special meeting of the board of directors, adopted a resolution approving a change in the state of its incorporation from California to Delaware. If approved by the requisite vote of the Company's shareholders, this reincorporation shall be effected through a merger of the Company with its wholly owned subsidiary, Big League Merger Corporation, a Delaware corporation.

Proposal

The Company is proposing to merge with and into Big League Merger Corporation. This merger is referred to herein as the reincorporation merger. Big League Merger Corporation will succeed to all of the rights, properties, assets and liabilities of the Company. Upon completion of the reincorporation merger, the Company will cease to exist and Big League Merger Corporation will continue to operate the business of the Company under the name "Nanometrics Incorporated" as a Delaware corporation. For convenience, Nanometrics Incorporated, after the reincorporation merger, is sometimes referred to as the Delaware company. Each outstanding share of the Company's common stock, no par value per share, will be automatically converted into one share of common stock of the Delaware company, $0.001 par value per share, upon the effective date of the reincorporation merger. It will not be necessary for shareholders of the Company to exchange their existing stock certificates for stock certificates of the Delaware company. Upon completion of the reincorporation merger, certificates which immediately prior to the reincorporation merger represented shares of common stock of the Company will be deemed for all purposes to represent the same number of shares of the Delaware company's common stock. Nevertheless, shareholders may exchange their certificates if they so choose. The Company's common stock is listed for trading on the Nasdaq National Market and, after the reincorporation merger, the Delaware company's common stock will continue to be traded on the Nasdaq National Market without interruption, under the same symbol, NANO, as the shares of the Company's common stock are currently traded.

The reincorporation merger has been approved by the Company's board of directors, by a unanimous vote at a special meeting. If approved by the requisite vote of the Company's shareholders, it is anticipated that the reincorporation merger will become effective as soon as practicable following the annual meeting of shareholders. The Company's shareholders will have no appraisal rights with respect to the reincorporation merger.

Immediately following the completion of the reincorporation merger, the composition of the board of directors of Big League Merger Corporation will be the same as the composition of the board of directors of the Company immediately prior to the reincorporation merger.

After the reincorporation merger, the rights of the Company's stockholders and the Company's corporate affairs will be governed by the Delaware General Corporation Law, and the certificate of incorporation and bylaws of the Delaware company, or the Delaware charter documents, rather than by the California General Corporation Law, and the current articles of incorporation and bylaws of the Company, or the California charter documents. There are differences between the California charter documents and the Delaware charter documents that may be important to you. See the section of this proxy statement entitled "Comparison of Rights of Holders and Corporate Governance Matters" for a comparison of the material rights of equity holders and matters of corporate governance before and after the reincorporation merger.

The summary and discussion of the proposed reincorporation merger set forth in this proxy statement is qualified in its entirety by reference to the California General Corporation Law, the Delaware General Corporation Law, the

California charter documents and the Delaware charter documents. Copies of the California charter documents are available for inspection at the Company's executive offices. Additionally, the Company will send such documents to you upon request. Copies of the Delaware company charter documents are attached to this proxy statement as Appendix A and B. We urge you to read each of these documents carefully for a complete understanding of your rights.

Principal Reasons for the Reincorporation Merger

As the Company plans for the future, the board of directors and management believe that it is essential to be able to draw upon well-established principles of corporate governance in making legal and business decisions. The prominence and predictability of Delaware corporate law provide a reliable foundation on which the Company's

18

corporate governance decisions can be based, and the Company believes that its shareholders will benefit from the responsiveness of Delaware corporate law to their needs and to those of the corporation they own.

Prominence, Predictability and Flexibility of Delaware Law

For many years, Delaware has followed a policy of encouraging incorporation in that state and, in furtherance of that policy, has been a leader in adopting, construing and implementing comprehensive, flexible corporate laws responsive to the legal and business needs of corporations organized under its laws. Many corporations have chosen Delaware initially as a state of incorporation or have subsequently changed their corporate domicile to Delaware. Because of Delaware's prominence as the state of incorporation for many major corporations, both the legislature and courts in Delaware have demonstrated an ability and a willingness to act quickly and effectively to meet changing business needs. The Delaware courts have developed considerable expertise in dealing with corporate issues, and a substantial body of case law has developed construing Delaware law, resulting in greater predictability with respect to corporate legal affairs.

Increased Ability to Attract and Retain Qualified Directors

Both California and Delaware law permit a corporation to include a provision in its charter which reduces or limits the monetary liability of directors for breaches of fiduciary duty in certain circumstances. The increasing frequency of claims and litigation directed against directors and officers has expanded the risks facing directors and officers of corporations in exercising their respective duties. The amount of time and money required to respond to such claims and to defend such litigation can be substantial. The Company desires to reduce these risks to its directors and officers and to limit situations in which monetary damages can be recovered against its directors so that it may continue to attract and retain qualified directors who otherwise might be unwilling to serve because of the risks involved. The Company believes that, in general, Delaware law provides greater protection to directors than California law and that Delaware law regarding a corporation's ability to limit director liability is more developed and provides more guidance than California law.

Well Established Principles of Corporate Governance

There is substantial judicial precedent in the Delaware courts as to the legal principles applicable to measures that may be taken by a corporation and as to the conduct of the board of directors, such as the business judgment rule

and other standards. This tends to assure a significant measure of certainty to legal aspects of the conduct of business and a sound basis for planning. Therefore, the Company believes that its shareholders will benefit from the well-established principles of corporate governance that Delaware law affords.

No Change in Board Members, Business, Management, Employee Benefit Plans or Location of Principal Facilities

The reincorporation merger will effect a change in the legal domicile of the Company and certain other changes of a legal nature which are described in this proxy statement. Except as contemplated in connection with the reincorporation merger, the reincorporation merger will NOT result in any change in the Company's business, management, assets or liabilities or the location of its principal facilities. Under United States generally accepted accounting principles, the proposed reincorporation will not result in any gain or loss to the Company. The consolidated financial statements and results of operations of the Delaware company immediately following the reincorporation merger will be identical to that of the Company immediately prior to the reincorporation merger. The directors of the Company immediately prior to the reincorporation merger will become the directors of the Delaware company immediately following the reincorporation merger. All employee benefit, stock option and employee stock purchase plans of the Company will be assumed and continued by the Delaware company, and each option or right issued pursuant to such plans will automatically be converted into an option or right to purchase the same number of shares common stock of the Delaware company, at the same price per share, upon the same terms, and subject to the same conditions. Shareholders should note that approval of this proposal 2 will also constitute approval of the assumption of these plans by the Delaware company. Other employee benefit arrangements of the Company will also be continued by the Delaware company upon the terms and subject to the conditions currently in effect. As noted above, after the reincorporation merger, the shares of common stock of the Delaware company will continue to be traded, without interruption, in the same principal market (the Nasdaq National Market) and under the same symbol, NANO, as the shares of common stock of the Company are currently traded. The Company believes that the proposed reincorporation will not affect any of its material contracts with any third parties and that the Company's rights and obligations under such material contractual arrangements will continue and be assumed by the Delaware company. See the section of this proxy statement entitled "Comparison of Rights of Holders and Corporate Governance Matters" for a comparison of the material rights of equity holders and matters of corporate governance before and after the reincorporation merger.

19

Material United States Federal Income Tax Consequences of the Reincorporation Merger

This section of the proxy statement summarizes the material United States federal income tax considerations of the reincorporation merger to the Company's shareholders. The summary is based on the Internal Revenue Code of 1986, as amended, applicable United States Treasury regulations under the Internal Revenue Code, administrative rulings and judicial authority, all as of the date of this proxy statement. All of the foregoing authorities are subject to change, with or without retroactive effect, and any change could affect the continuing validity of this summary. A ruling from the Internal Revenue Service in connection with the reincorporation merger will not be requested, and we cannot assure you that the Internal Revenue Service will conclude that the reorganization merger qualifies as a reorganization under Section 368(a) of the Internal Revenue Code.

The summary assumes that the Company's shareholders hold their shares as capital assets. The summary does not address the tax consequences that may be applicable to particular shareholders in light of their individual circumstances or to shareholders who are subject to special tax rules, such as non-United States persons, dealers in securities, shareholders who acquired shares of common stock through the exercise of options or otherwise as compensation or through a qualified retirement plan, and shareholders who hold their common stock as part of a straddle, hedge, or conversion transaction. In addition, this summary does not address the tax consequences of the reincorporation merger to holders of options or warrants to acquire capital stock of or the tax consequences of transactions effectuated prior or subsequent to, or concurrently with, the reincorporation merger, whether or not any such transactions are undertaken in connection with the reincorporation merger. This summary also does not address any consequences arising under the tax laws of any state, local, or foreign jurisdiction.

The reincorporation merger will qualify as a reorganization within the meaning of Section 368(a) of the Internal Revenue Code, which will result in the following federal income tax consequences to the Company's shareholders:

- shareholders will not recognize any gain or loss upon the receipt of common stock in the reincorporation merger;
- the aggregate tax basis of the common stock received by shareholders in the reincorporation merger will be the same as the aggregate tax basis of the common stock surrendered in exchange therefor;
- the holding period of the common stock received by each shareholder in the reincorporation merger will include the period for which common stock surrendered in exchange therefor was considered to be held; and
- the Company will not recognize gain or loss solely as a result of the reincorporation merger.

SHAREHOLDERS SHOULD CONSULT THEIR OWN TAX ADVISORS WITH RESPECT TO THE SPECIFIC TAX CONSEQUENCES OF THE PROPOSED REINCORPORATION TO THEM, INCLUDING THE APPLICATION AND EFFECT OF UNITED STATES FEDERAL, STATE, LOCAL AND FOREIGN INCOME AND OTHER TAX LAWS.

Vote Required

The affirmative vote of the holders of a majority of the outstanding shares of common stock entitled to vote on the record date is required to approve its reincorporation from a California corporation to a Delaware corporation. Unless otherwise instructed, the proxies will vote "FOR" this proposal 2.

THE BOARD OF DIRECTORS RECOMMENDS THAT THE SHAREHOLDERS VOTE "FOR" PROPOSAL 2.

PROPOSALS 3A-G
GOVERNANCE PROVISIONS OF THE COMPANY'S
CERTIFICATE OF INCORPORATION AND BYLAWS

If approved by the requisite vote of the Company's shareholders, the Company will change the state of its incorporation from California to Delaware. Upon completion of the reincorporation merger, the Company will be governed by

the Delaware General Corporation Law and the certificate of incorporation of Big League Merger Corporation, currently a wholly-owned subsidiary of the Company. The proposed certificate of incorporation that will govern the Company following the completion of the reincorporation merger differs in some material respects from the Company's existing articles of incorporation. At the annual meeting, you will be asked to consider and vote on each of the governance-related provisions in the Company's certificate of incorporation to be in effect after the reincorporation merger described below.

The following is a summary of selected governance-related provisions of the form of certificate of incorporation of the Company to be in effect after the reincorporation merger. While the Company believes that this description covers the material governance-related provisions of the certificate of incorporation of the Company to be in effect after the reincorporation merger which differ materially from the Company's existing articles of incorporation, it may not contain all of the information that is important to you and is qualified in its entirety by reference to the form of certificate of incorporation and bylaws of the Company which are attached to this proxy statement as Appendix A and B, respectively. We urge you to read each of these documents carefully. See also the section of this proxy statement entitled "Comparison of Rights of Holders and Corporate Governance Matters" for a comparison of rights of equity holders and matters of corporate governance before and after the reincorporation merger.

Proposal 3A: A proposal to approve a provision limiting the Company's stockholders' right to call special meetings of stockholders.

Under the Company's current bylaws, a special meeting of shareholders may be called at any time by one or more shareholders holding shares in the aggregate entitled to cast at least 10% of the votes at that meeting. However, the Company's certificate of incorporation to be in effect after the reincorporation merger provides that special meetings of stockholders may be called by the chairman of the board of directors or by a majority of the board of directors, but such special meetings may not be called by any other person or persons.

See Article VIII of the form of certificate of incorporation of the Company to be in effect after the reincorporation merger.

Proposal 3B: A proposal to approve a provision limiting the Company's stockholders' ability to act by written consent.

Under the Company's current bylaws, any action which may be taken at any annual or special meeting of shareholders may be taken without a meeting and without prior notice, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding shares having not less than the minimum number of votes that would be necessary to authorize or take that action at a meeting at which all shares entitled to vote on that action were present and voted. In the case of election of directors, such a consent shall be effective only if signed by the holders of all outstanding shares entitled to vote for the election of directors.

Delaware law permits stockholders to act by written consent, unless otherwise provided in the certificate of incorporation. However, the Company's certificate of incorporation to be in effect after the reincorporation merger does not permit stockholder action by written consent and provides that no action may be taken by the

stockholders except at an annual or special meeting of stockholders called in

accordance with the certificate of incorporation and bylaws.

See Article VIII of the form of certificate of incorporation of the Company to be in effect after the reincorporation merger.

Proposal 3C: A proposal to approve a provision requiring a super-majority vote of the Company's stockholders to amend certain provisions of its certificate of incorporation.

Under the Company's current articles of incorporation, certain amendments to the articles of incorporation requires the affirmative vote of board of directors and the holders of at least a majority of the outstanding shares entitled to vote. The certificate of incorporation of the Company to be in effect after the reincorporation merger requires the affirmative vote of the holders of at least 66.67% of the outstanding shares entitled to vote to amend, repeal or adopt a provision inconsistent with the provisions of the certificate of incorporation relating to (i) shares authorized; (ii) amendment of bylaws; (iii) authority to call special stockholder meetings; and (iv) amendment of the certificate of incorporation.

See Article X of the form of certificate of incorporation of the Company to be in effect after the reincorporation merger.

Proposal 3D: A proposal to approve a provision requiring a super-majority vote of the Company's stockholders to amend certain provisions of the Company's bylaws.

Under California law and the Company's current bylaws, the bylaws may be adopted, amended or repealed either by the board of directors or a majority of the outstanding shares entitled to vote. Under the Company's certificate of incorporation to be in effect after the reincorporation merger, bylaws may be adopted, amended, altered or repealed by the board of directors or the affirmative vote of the holders of at least 66.67% of the shares of capital stock of the corporation issued, outstanding and entitled to vote.

See Article VI of the form of certificate of incorporation of the Company to be in effect after the reincorporation merger.

Proposal 3E: A proposal to approve a provision limiting the Company's stockholders' right to remove directors from office without cause.

Under California law, any director or the entire board of directors may be removed, with or without cause, with the approval of a majority of the outstanding shares entitled to vote. However, the Company's certificate of incorporation to be in effect after the reincorporation merger provides that directors may be removed from office by the stockholders only for cause. Under Delaware law, such stockholder action must occur by a majority of outstanding stock entitled to vote.

See Article V of the form of certificate of incorporation of the Company to be in effect after the reincorporation merger.

Proposal 3F: A proposal to approve the classification of the board of directors into separate classes with staggered terms.

The Company's current articles of incorporation and bylaws do not classify the board of directors into separate classes with staggered terms. However, the Company's bylaws to be in effect after the reincorporation merger provides for the classification of the board of directors into three separate classes, consisting as nearly equal in number as may be practicable of 1/3 of the total number of directors constituting the entire board of directors, with staggered three-year terms. Any vacancies which occur during a year may be filled by a

majority of the directors then in office. Persons elected to fill vacancies in this manner may serve until the next election of the class for which such director shall have been chosen

See Article III, Section 3.4 of the form of bylaws of the Company to be in effect after the reincorporation merger.

Proposal 3G: A proposal to approve a provision limiting cumulative voting rights in connection with the election of directors.

The Company's current bylaws provide for cumulative voting for the election of directors at meetings of shareholders. Every shareholder voting for the election of the Company's board of directors may (i) cumulate such shareholder's votes and give one candidate a number of votes equal to the number of directors to be elected multiplied by the number of shares that such shareholders holds or (ii) distribute such shareholder's votes on the same principle among as many candidates as the shareholder may select, provided that votes cannot be cast for more than the number of candidates standing for election. However, no shareholder shall be entitled to cumulate votes for a candidate unless the candidate's name has been placed in nomination prior to the voting and the shareholder, or any other shareholder, has given notice at the meeting prior to the voting of the intention to cumulate votes.

The Company's certificate of incorporation to be in effect after the reincorporation merger will not provide for cumulative voting in connection with the election of directors. Under Delaware law, directors are elected by the affirmative vote of a plurality of the shares present in person or by proxy at a stockholder meeting entitled to vote on the election of directors.

Purpose

The Company's board of directors has approved the certificate of incorporation that includes the provisions described above. These provisions, including, for example, the elimination of shareholders' rights to call special meetings, may have the effect of delaying or deterring unsolicited takeover transactions. The board of directors determined that it was appropriate to adopt these provisions in the Company's certificate of incorporation to be in effect after the reincorporation merger, notwithstanding the fact that such provisions are absent from the Company's current articles of incorporation in order to enhance stockholder value by helping the Company thwart hostile or coercive overtures that are not supported by the board of directors.

Vote Required

Under applicable state law, stockholder approval of the reincorporation merger is sufficient to implement the proposed governance-related provisions in the Company's certificate of incorporation. Under rules promulgated by the Securities and Exchange Commission, however, we are required to present each of the proposed governance-related provisions as a separate proposal for stockholder approval. Accordingly, we have determined that we will not implement any of the proposed governance-related provisions unless it is approved by the affirmative vote of the holders of a majority of the shares of the Company's common stock represented and voting on each proposed governance-related provision at the annual meeting.

THE BOARD OF DIRECTORS RECOMMENDS THAT THE
SHAREHOLDERS VOTE "FOR" PROPOSALS 3A-G.

COMPARISON OF RIGHTS OF HOLDERS AND CORPORATE GOVERNANCE MATTERS

The Company is incorporated under the laws of the State of California and accordingly, the rights of the shareholders of Company are currently governed by the California General Corporation Law and the Company's articles of incorporation and bylaws. Upon completion of the reincorporation merger, the Company will be a Delaware corporation, and the rights of the stockholders of the Company will be governed by the Delaware General Corporation law and the Company's certificate of incorporation and bylaws.

The following is a summary of the material differences between the current rights of holders of the Company's common stock and the rights of holders of the Company's common stock upon completion of the reincorporation merger. The Company will send copies of the Company's articles of incorporation and bylaws to you, without charge, upon your request. Copies of the Delaware company certificate of incorporation and bylaws are attached to this proxy statement as Appendix A and B, respectively.

	Nanometrics (California Corporation)	Nanometrics (Delaware Corpor
Authorized Capital Stock	The authorized capital stock of the Company consists of 50,000,000 shares of common stock, no par value per share.	The authorized capita Delaware company cons 47,000,000 shares of par value $0.001 per 3,000,000 shares of p $0.001 per share. The Delaware company is a stock in series, to e number of shares to b to fix the designatio relative rights of ea qualifications, limit thereof.
Number of Directors	The Company's bylaws provide that the board of directors shall consist of not less than five nor more than seven members. The exact number shall be seven, however, until an amendment to the bylaws otherwise fixing the number is duly adopted by the board of directors or shareholders. The number of directors may be changed by an amendment to the articles of incorporation or by an amendment to the bylaws, duly adopted by the vote or written consent of holders of a majority of the outstanding shares entitled to vote; provided, however, that an amendment reducing the fixed number or the minimum number of directors to a number less than five	No fixed number of di required by either th certificate of incorp Delaware company. Rat authorized number of be determined from ti resolution of the boa The board of director company currently con directors. Upon compl reincorporation merge company board of dire expanded to consist o directors.

cannot be adopted if the votes cast against its adoption at a meeting, or the shares not consenting in the case of an action by written consent, are equal to more than 16 (2)/3% of the outstanding shares entitled to vote thereon. No amendment may change the stated maximum number of authorized directors to a number greater than two times the stated minimum number of directors minus one.

	Nanometrics (California Corporation)	Nanometrics (Delaware Corpor
Cumulative Voting	The Company's bylaws provide for cumulative voting for the election of directors at meetings of shareholders. Accordingly, the Company's shareholders have cumulative voting rights in connection with the election of directors.	The certificate of in bylaws, as proposed, for cumulative voting Company's shareholder proposal 3G, the Dela stockholders will not voting rights in conn election of directors Company's shareholder proposal 3G, the Dela bylaws will provide f voting.
Classification of Board of Directors	The Company's articles of incorporation and bylaws do not classify the Company's board of directors into separate classes with staggered terms.	The Delaware company' the board of director separate classes as n size as practicable, three-year terms. Thi Delaware company's bo difficult for a poten control of the Delawa directors.
Removal of Directors	Under California law, the board of directors may declare vacant the office of a director who has been declared of unsound mind by an order of court or convicted of a felony. Further, any director or the entire board of directors may be removed, with or without cause, with the approval of a majority of the outstanding shares entitled to vote thereon; however, no director may be removed (unless the entire board is removed) if the number of shares voted to elect the director under cumulative voting. Shareholders holding at least 10% of the outstanding shares in any class may sue in superior	The Delaware company' incorporation, as pro that directors may be office by the stockho cause. If the Company approve proposal 3E, vote of the Delaware stockholders would be remove a director for

	county court to remove from office any officer or director for fraud, dishonest acts or gross abuse of authority or discretion.	
Filling Vacancies on the Board of Directors	Under California law, any vacancy on the board of directors other than one created by removal of a director may be filled by the board of directors, unless otherwise provided in the articles of incorporation or bylaws. If the number of directors is less than a quorum, a vacancy may be filled by the unanimous written consent of the directors then in office, by the affirmative vote of a majority of the directors at a meeting held pursuant to notice or waivers of notice, or by a sole remaining director. A vacancy created by removal of a director can only be filled by the shareholders unless board approval is authorized by a corporation's articles of incorporation or by a bylaw approved by the corporation's shareholders. Neither the articles of incorporation nor the bylaws of the Company permit the board of directors to fill a vacancy created by the removal of a director.	Under Delaware law, u provided in the certi incorporation or the vacancies on a board (ii) newly created di resulting from an inc number of directors, a majority of the dir office. In the case o board of directors of company, directors el vacancies or newly cr directorships will ho the next election of which the directors h The certificate of in bylaws of the Delawar that any vacancies on directors may be fill affirmative vote of a remaining directors i less than a quorum, o remaining director.

25

	Nanometrics (California Corporation)	Nanometrics (Delaware Corpor
Special Meetings of Shareholders	The Company's bylaws, in accordance with California law, provide that a special meeeting of shareholders may be convened at any time by the board directors, or by the chairman of the board of directors, or by the president, or by one or more shareholders holding shares in the aggregate entitled to cast at least 10% of the votes at that meeting.	The Delaware company' incorporation, as pro that special meetings for any purpose or pu at any time by the ch directors or by a maj number of directors, may not be called by persons. If the Compa approve proposal 3A, company stockholders ability to call speci
Advance Notice Provisions for Meetings of Shareholders	The Company's bylaws, in accordance with California law, provide that written notice of a special meeting of the shareholders specifying the place, date and hour of the meeting and the purpose of the meeting must be given to each	The Delaware company' incorporation, in acc law, provides that wr meeting of the stockh if any, date and hour remote communication, meeting must be given entitled to vote not days before the date

	shareholder not less than 10 nor more than 60 days before the date of the meeting.	
Action by Written Consent of the Shareholders	The Company's bylaws provide that any action which may be taken at any annual or special meeting of shareholders may be taken without a meeting and without prior notice, if a consent in writing, setting forth the action so taken, is signed by the holders of outstanding shares having not less than the minimum number of votes that would be necessary to authorize or take that action at a meeting at which all shares entitled to vote on that action were present and voted. In the case of election of directors, such a consent shall be effective only if signed by the holders of all outstanding shares entitled to vote for the election of directors. This provision allows the Company's shareholders to take action without a shareholder meeting and thereby dispense with the limits on who may call, and the notice requirements of, shareholders meetings.	The Delaware company' incorporation, as pro allow action to be ta stockholders by writt the Company's shareho proposal 3B, then no taken by the Delaware stockholders except a special meeting of st in accordance with th company's certificate and bylaws.

	Nanometrics (California Corporation)	Nanometrics (Delaware Corpor
Proxies	The Company's bylaws, in accordance with California law, provide that any shareholder entitled to vote for directors, or any other matter, shall have the right to do so by designating another person to act for such shareholder by proxy. No proxy, however, shall be voted or acted upon after 11 months from its date, unless the proxy provides for a longer period.	The Delaware company' each stockholder enti meeting of stockholde another person or per stockholder by proxy instrument in writing permitted by law file the procedure establi No proxy, however, ma upon after three year unless the proxy spec
Charter Amendment	Under California law, unless otherwise specified in the articles of incorporation, an amendment to the articles of incorporation requires the approval of the corporation's board of directors and the affirmative vote of a majority of the outstanding shares entitled to vote thereon, either before or after the board of directors approval, although certain minor amendments may be adopted by the board	Under Delaware law, u certificate of incorp greater vote, an amen certificate of incorp (i) the approval and the board of director affirmative vote of a outstanding stock ent the amendment; and (i affirmative vote of a outstanding stock of

of directors alone, such as amendments causing stock splits (including an increase in the authorized number of shares in proportion thereto) and amendments changing names and addresses given in the articles. The Company's articles of incorporation do not require a greater level of approval. Under California law, the holders of the outstanding shares of a class of stock are entitled to vote as a class if a proposed amendment to the articles of incorporation would: (i) increase or decrease the aggregate number of authorized shares of such class; (ii) effect an exchange, reclassification or cancellation of all or part of the shares of such class, other than a stock split; (iii) effect
required to approve any charter
an exchange, or create a right of exchange, of all or part of the shares of another class into the shares of such class; (iv) change the rights, preferences, privileges or restrictions of the shares of such class; (v) create a new class of shares having rights, preferences or privileges prior to the shares of such class, or increase the rights, preferences or privileges or the number of authorized shares having rights, preference or privileges prior to the shares of such class; (vi) in the case of preferred shares, divide the shares of any class into series having different rights, preferences, privileges or restrictions or authorize the board of directors to do so; or (vii) cancel or otherwise affect dividends on the shares of such class which have accrued but have not been paid.

entitled to vote on t
class. The certificat
of the Delaware compa
further requires the
of the holders of at
the shares of capital
corporation issued an
entitled to vote to a
adopt a provision inc
provisions of the Del
certificate of incorp
(i) shares authorized
of bylaws; (iii) auth
special stockholder m
(iv) amendment of the
incorporation. If the
approve proposal 3C,
of the holders of at
the Delaware company'
amendments described

27

	Nanometrics (California Corporation)	Nanometrics (Delaware Corpor
Amendment of Bylaws	Under California law, and according to the Company's bylaws, the bylaws of the Company may be adopted, amended or repealed either by the board of directors or a majority of the outstanding shares entitled to vote.	The Delaware company incorporation, as pro the board of director or repeal the bylaws. the foregoing, the ho 66.67% of the shares of the Delaware compa outstanding and entit

		by affirmative vote, repeal the bylaws of If the Company's shar proposal 3D, then it for the Delaware comp amend the Delaware co it is for the Company to amend the Company'
Dividends and Repurchases of Shares	Under California law, no distributions to a corporation's shareholders may be made unless: (i) the amount of the retained earnings of the corporation immediately prior to the distribution equals or exceeds the amount of the proposed distribution; (ii) immediately after the distribution, the sum of the assets of the corporation (excluding certain items) is at least equal to 1 (1)/4 times its liabilities; and the current assets of the corporation is at least equal to its current liabilities, or if the average of the earnings of the corporation before taxes on income and before interest expense for the two	Under Delaware law, t directors of a corpor subject to any restri in its certificate of declare and pay divid shares of its capital out of its surplus; o is not surplus, out o the fiscal year in wh is declared or the pr year, provided that i the corporation is le amount of capital rep issued and outstandin classes having a pref distributions of the