UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D. C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

August 6, 2007

Date of Report (date of earliest event reported)

Nanometrics Incorporated

(Exact name of Registrant as specified in charter)

Delaware (State or other jurisdiction

0-13470 (Commission File Number) 94-2276314 (I. R. S. Employer

Identification No.)

of incorporation)

1550 Buckeye Drive, Milpitas, California 95035

(Address of principal executive offices)

Registrant s telephone number, including area code: (408) 545-6000

N/A

(Former name or former address, if changed since last report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- " Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- " Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- " Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- " Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 1.01 Entry into a Material Definitive Agreement.

Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

Appointment of Dr. Stultz

On August 6, 2007, Nanometrics Incorporated announced that Timothy J. Stultz, Ph.D. will join the company as its President and Chief Executive Officer. Dr. Stultz is expected to join us in late-August, and is to succeed Bruce C. Rhine, who will become Chairman of the Board of Directors. Our founder, Vincent J. Coates, will become Vice Chairman of Board. Dr. Stultz will become a director of Nanometrics effective as of his start of employment with us. The terms of Dr. Stultz semployment are set out in the offer letter to Dr. Stultz which is attached as Exhibit 10.1, and in the executive severance agreement and relocation agreement attached as Exhibits 10.2 and 10.3, respectively.

Dr. Stultz will be paid an annual base salary of \$377,000 and will receive a signing bonus of \$100,000 after completion of one month s service to the company. Additionally, we will grant Dr. Stultz an option for 200,000 shares of common stock and an award of 50,000 restricted stock units from within our 2005 Equity Incentive Plan. The shares subject to the option will vest over a three-year period from the date of grant, with one-third of the total number vesting on the first anniversary of the date of grant, and $1/36^{th}$ of the total number vesting ratably on a monthly basis thereafter. The restricted stock units will vest over a three-year period from the date of grant, with one-third of the total number vesting on each annual anniversary of the date of grant.

We have also included in Dr. Stultz s package payment of relocation expenses, eligibility for bonus payments, and certain severance and change of control benefits, including cash and equity award acceleration, all as set forth in more detail in the attached agreements. Also, we intend to enter into our standard form of indemnification agreement with Dr. Stultz on substantially the same terms as those entered into with our other executive officers.

Since June 2003, Dr. Stultz, 59, has served as the President and Chief Executive Officer and a member of the board of directors of Imago Scientific Instruments Corporation, a supplier of proprietary 3-D atom probe microscopes to the research materials and microelectronics industries. Prior to Imago, Dr. Stultz served as President and Chief Executive Officer for ThauMDx, a developer of diagnostic systems and technologies for the analysis of biomolecules, drugs and chemicals. Dr. Stultz received his B.S., M.S. and Ph.D. in Materials Science and Engineering from Stanford University.

Incentive Cash Award Program

Our Board of Directors has indicated that the operative performance metric for the incentive cash award program previously disclosed in a Current Report on Form 8-K filed with the Securities and Exchange Commission on May 31, 2007 is quarterly operating profitability, not quarterly earnings before income taxes, as previously disclosed.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No. 10.1	Description Offer Letter to Timothy Stultz
10.2	Executive Severance Agreement with Timothy Stultz
10.3	Relocation Agreement with Timothy Stultz
99.1	Press release issued by Nanometrics Incorporated dated August 6, 2007

Signature

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: August 8, 2007 NANOMETRICS INCORPORATED

/s/ Quentin B. Wright Quentin B. Wright

Interim Chief Financial Officer

INDEX TO EXHIBITS

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