



APPENDIX K

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December 12, 2002

MEMORANDUM

To: Committee on Educational Planning, Policies and Programs

From: Molly Corbett Broad

Subject: Establishment of the Silicon Wafer Engineering and Defect Science Center at North Carolina State University

Request to Establish

In May 1997, North Carolina State University received authorization to plan the Silicon Wafer Engineering and Defect Science Center. In subsequent comprehensive reviews of UNC centers and institutes during 1999 and 2001, the UNC Office of the President granted extensions of the center's planning period. The planning is now complete, and NCSU has submitted a request to establish this unit as an institutional research center. The following sections briefly summarize the information provided by NCSU to satisfy the requirements of Chapter 1200.6[R] in the *University of North Carolina Policy Manual*.

Goals and Objectives

The goal of the center is to create a unique multi-university, multi-company organization to produce critical science and technology required by the international silicon materials industry to meet the future requirements for advanced integrated circuit manufacturing. In fulfilling that goal, the center will improve understanding of the underlying mechanisms and processes for the gettering of impurities and the preparation of atomically ideal surfaces. The center will carry out the following objectives:

- Provide a mechanism by which the knowledge-based research issues facing the international silicon wafer manufacturing community can be identified and addressed by the U.S. academic community.
- Educate graduate and post-graduate students to become effective members of the wafer manufacturing research community.
- Provide a research and administrative infrastructure to enable the funding of large-scale knowledge-based wafer engineering and defect science research.

Relevance to Institutional Mission; Relationship with Existing Academic Units

The center is affiliated with the Department Materials Science & Engineering in the College of Engineering at NCSU. Its university members include Arizona State University, the University of Arizona, the Massachusetts Institute of Technology, Stanford University, the University of California at Berkeley, and the University of Washington. Its industry members include Intel Corporation, Komatsu Silicon, LG Siltron, MEMC, Okmetic Oyi, Sumitomo Sitix Silicon, Texas Instruments, and Wacker Siltronic. The center's research is unique within the University, and no similar University units exist.

Anticipated Effects on Instructional Programs

The center's major educational program focuses on graduate and post-graduate students in areas related to the center's technical activities in the wafer engineering and defect science (WEDS) area. The goal is to create an expanded population of scientists and engineers with the necessary skills and knowledge to become productive in the WEDS area without the need for additional post-graduate training, thus increasing the supply of future employees to the silicon materials industry. The center will also provide an opportunity for scientists and engineers from member companies to enhance their knowledge in these areas by spending time on campus.

Administrative Structure

The center's Director will be George Rozgonyi, professor of Materials Science and Engineering. The Director will report to the Dean of the College of Engineering. An Industrial Advisory Board, composed of one representative from each of the center's industrial members, will advise the Director on matters related to center management and technical direction.

Budget and Anticipated Sources of Funding

The center's current operating budget is \$520,000. Industry membership fees account for approximately 90 percent of the budget, while external funds from the National Science Foundation account for the remaining 10 percent. The center's operating budget is anticipated to increase approximately five percent per year. NCSU provides salary support for the center's faculty and staff. No additional state funding is requested with this establishment.

Space and Capital Needs

The Center's Director and administrative group are located at Burlington Labs on the NCSU campus. However the research facilities are spread across NCSU and the other universities mentioned above. It has no immediate needs for additional space, capital equipment, or library resources.

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Recommendation

It is recommended that North Carolina State University be authorized to establish the Silicon Wafer Engineering and Defect Science Center.