

The Regents of the University of California

COMMITTEE ON EDUCATIONAL POLICY

March 13, 2002

The Committee on Educational Policy met on the above date at UCSF-Laurel Heights, San Francisco.

Members present: Regents Atkinson, Davies, T. Davis, Johnson, Lansing, Lozano, Marcus, Montoya, Moores, and Sayles; Advisory members Ligot-Gordon, Sainick, and Terrazas

In attendance: Regents Blum, Hopkinson, Kozberg, Lee, Morrison, Parsky, Pattiz, Preuss, Saban, and Seymour, Faculty Representatives Binion and Viswanathan, Associate Secretary Shaw, General Counsel Holst, Treasurer Russ, Provost King, Senior Vice Presidents Darling and Mullinix, Vice Presidents Broome, Gurtner, and McTague, Chancellors Berdahl, Bishop, Cicerone, Dynes, Tomlinson-Keasey, Vanderhoef, and Yang, Acting Chancellor Warren, and Recording Secretary Nietfeld

The meeting convened at 11:03 a.m. with Committee Chair Montoya presiding.

1. **CONSENT AGENDA**

Approval to Establish and Participate in the Combined Association for Research in Millimeter-Wave Astronomy (CARMA) with the University of Illinois, the University of Maryland, and the California Institute of Technology, Berkeley Campus

The President recommended the establishment of and the Berkeley campus' participation in a consortium to be known as the Combined Association for Research in Millimeter-Wave Astronomy (CARMA).

Regent Montoya raised the issue of the University's liability given the organizational structure of CARMA. Senior Vice President Mullinix explained that the purpose of CARMA would be to combine two independent consortia - the Berkeley, Illinois, and Maryland (BIMA) Consortium and the Owens Valley Radio Observatory (OVRO) - into a single collaboration. The first phase of the project would involve the relocation of the OVRO array from Owens Valley to a new site higher in the Inyo Mountains, the relocation of BIMA from Hat Creek to the new site, and construction of the CARMA array. The second phase will be the operation of CARMA. All parties have signed a Memorandum of Understanding agreeing in principle to form the consortium. A formal contract is being developed for the operating structure. The total cost of the first phase is estimated at \$15 million. These funds will be raised and spent between October 2001 and December 2005. Both the University of Maryland and the University of Illinois will contribute a combined total of \$3 million. The Berkeley campus will contribute \$2 million. Additional funding will be provided by Caltech. The National Science Foundation is expected to

provide the operating funds for the second phase. The arrays will be constructed such that removal of any one array would not affect the capabilities of the remaining equipment. If the Berkeley campus does not receive funding from the NSF for the construction phase, it will not move the BIMA array to the new site.

Mr. Mullinix continued that combining the BIMA array with ORVO will provide a more powerful research tool at a superior site that will further advance the production of groundbreaking science. CARMA will be the premier millimeter-wave array in the world until at least 2010.

Regent Johnson asked for an update from the President in two years.

Upon motion duly made and seconded, the Committee approved the President's recommendation and voted to present it to the Board.

2. **PROPOSED ESTABLISHMENT OF COLLEGE NINE, SANTA CRUZ CAMPUS**

The President recommended that College Nine be established on the Santa Cruz campus, effective immediately, and that Section 13 of The Regents' provisions as covered under Standing Order 110.1 - Academic Units and Functions, Affiliated Institutions, and Related Activities of the University, be amended as follows:

Additions shown by underlining

13. Academic Colleges at Santa Cruz

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- (g) There is established at Santa Cruz College Nine with undergraduate curricula leading to degrees of Bachelor of Arts and Bachelor of Science.

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The Committee was informed that there are eight Colleges at UC Santa Cruz; College Nine will be the first new residential college since 1972. The college system at the Santa Cruz campus is designed to provide entering students with a small community of shared learning. By living in the same residence hall and partly sharing their curriculum, students are more readily able to form intellectual and social bonds with one another. Moreover, the College is a context for creating and facilitating opportunities for faculty and students to interact.

College Nine will be open to all UCSC undergraduate students. With its thematic emphasis on international and global issues, students from diverse cultural and economic backgrounds will be especially welcome. Service, Education Abroad, and practicum requirements may be particularly attractive to prospective majors in anthropology, economics, environmental

studies, politics, history, and sociology. The College Nine theme will help orient students to the increasing cultural diversification and economic globalization affecting California.

Educational Programs

College Nine will have the academic and co-curricular theme of International and Global Perspectives, addressing the complementary issues of diversity, regionalism, and globalism in the modern world. Students from all disciplines are eligible for affiliation with College Nine. The academic programs will include the following:

- A World of Possibilities Writing Workshop. This is a first-quarter course required of all entering College Nine freshmen. The course will address population diversity and increasing interconnections brought about by computers, media, travel, and economic globalization.
- Exploring A World of Possibilities is a two-credit course required for freshmen in the winter quarter and transfer students in the fall quarter. A weekly series of guest lectures, student presentations, exercises, and discussions are centered on the college theme.
- Introductory Social Sciences. All students will be required to take at least one five-unit introductory social sciences course. The approved courses are taught by ladder faculty.
- Practicum. Students in College Nine are required by the end of the junior year to complete one quarter in one of the following: Education Abroad Program (EAP), foreign language, service learning (field study), Global Information Internship Program, or UC-DC Program.
- Revisiting A World of Possibilities. Students returning from the Education Abroad Program may enroll in a two-credit course to examine and share respective EAP experiences.
- College Honors. Students in College Nine may apply for college honors by achieving a minimum academic standing and by completion of a minimum of fifteen academic credits in one of the following: senior thesis research, practicum, Education Abroad Program, or satisfaction of the foreign language requirement.
- Global Studies Honors. This is a proposed honors minor aligned with the College Nine theme.

Academic and Long-Range Development Plan

Establishment of College Nine is consistent with the campus' academic plan and long-range development plan. The planned enrollment growth and on-campus housing accommodated by College Nine is a crucial component of UCSC's plan for growth in undergraduate student enrollments.

Reviews and Approvals

The proposal to establish College Nine has been endorsed by the Santa Cruz Division of the Academic Senate and by the University of California Academic Council.

Resources

Appropriate funding will be provided consistent with standard University budgetary practice. The three major funding sources are State funding, educational and registration fees, and gifts. The College Nine facilities were funded with external financing, University of California Housing System Net Revenue Funds, University Center Reserves, gift funds, and Student Facilities Fee reserves. Initial occupancy of residential apartments occurred in Fall 2000. Residential halls and dining facilities will open in Fall 2002.

Upon motion duly made and seconded, the Committee approved the President's recommendation and voted to present it to the Board.

3. **UPDATE ON THE CALIFORNIA INSTITUTES FOR SCIENCE AND INNOVATION**

Provost King recalled the California Institutes for Science and Innovation were proposed by Governor Davis in his State of the State Address in January 2000. Based on the findings of a rigorous scientific peer-review process, Governor Davis selected three Institutes in December 2000 and added a fourth in July 2001. Each of the four Institutes is focused in areas of science and engineering that are poised for significant advances and that are relevant to the California economy and other societal needs.

Associate Vice Provost for Research Huttner reported that the Institutes and their directors are as follows:

California Institute for Bioengineering, Biotechnology, and Quantitative Biomedicine (QB3)
Marvin Cassman, Director; UCSF-lead, UCB, UCSC

California Institute for Telecommunications and Information Technology [Cal(IT)²]
Larry Smarr, Director; UCSD-lead, UCI

California NanoSystems Institute (CNSI)

Jim Heath, Director; Evelyn Hu, Co-Director; UCLA-lead, UCSB

Center for Information Technology Research in the Interest of Society (CITRIS)
Ruzena Bajcsy, Director; UCB-lead, UCD, UCSC, UCM

The Institutes are building broadly interdisciplinary world-class centers for the kind of scientific discovery that fuels innovation, economic competitiveness, and social solutions. They actively combine research excellence with the education and training of the next generation of scientists and technological leaders. They are drawing into joint action the best and brightest from UC and industry to address problems that require coordinated, multidisciplinary research of significant scale and complexity.

Governor Davis conceived of the Cal ISI initiative as a vital strategy for ensuring that California remains in the vanguard of technological and scientific innovation in the next century. He proposed that the State provide \$100 million over a four-year period to each of the Institutes – mostly for capital projects, but also including major equipment and 5 percent for operating costs – on the condition that the University raise \$2 in non-State funding for every \$1 provided by the State over the four years. Associate Vice Provost Huttner estimated that the Institutes would achieve a \$3 match during that period, much of which is either already committed or in hand from private-sector sources or projected to be awarded in major new federal grants. These contributions are targeted to specific research and education activities of the Institutes. Funding will be devoted to planning, working drawings, and limited operating costs for all of the Institutes from General Funds already appropriated; \$308 million in construction costs will be funded from lease revenue bonds. Work on the planning and construction of the new research facilities is moving forward aggressively. Because the State's contribution is limited to capital construction, major equipment, and a small amount of core operating support, these matching funds are providing support for the research and education programs. They do not, however, provide support for the technical staff and other ongoing operating costs essential to the Institutes' success. Undergraduate student research is being supported by fellowships, while there have been generous donations of equipment that would have otherwise been difficult to acquire.

The Institutes are being developed to ensure that their research and education programs will strengthen California's economic competitiveness and address emerging social and security challenges. They catalyze both the scientific discoveries and their deployment in the societal arena. By linking campus and community, they help ensure that new technologies and applications that stimulate industries and jobs and that help solve societal problems are brought to bear when and where they are needed.

The Institutes enable the best academic investigators and their students to work in multidisciplinary teams on critical early-stage research problems that lie at the interface between academia and industry. They promote focused, cooperative research and teaching programs that encourage industry scientists to join the Institutes or participate in joint

activities, and they promote technology transfer. In addition, the Institutes provide unique, relevant educational experiences for students who will form California's future scientific and technological workforce both in academia and industry. They have sparked enthusiasm in the private sector and at federal agencies, with strong financial commitments from companies both here and abroad. These commitments are dependent, however, on State funding being provided to the Institutes.

CITRIS Director Bajcsy reported that the past year had been one of accomplishment for the Institute, noting that it could not have been foreseen that, following the events of September 11, 2001, the development of CITRIS would be critical to the state, the country, and the world. When Dean Newton first proposed CITRIS as an Institute for Science and Innovation, the state was battling the energy crisis, and energy conservation was a central focus of CITRIS research. Since September 11, the Institute has expanded that focus to include emergency response and homeland defense. CITRIS is devoted to solving problems that affect the entire country. Professor Bajcsy observed that societal-scale information systems must be able to harness vast amounts of information in order to respond to problems and improve the quality of life. These systems, which must be reliable, private, and resistant to attack, will form the backbone of global communication systems.

"Smart dust" sensors are the building blocks of the CITRIS sensing network that was installed to monitor energy usage on the Berkeley campus. The goal is to reduce the size of these sensors to about one millimeter. More than 5,000 loads of smart dust have been shipped to academia, industry, and government research groups around the country. Professor Bajcsy reported that, working with colleagues at CalTech, the sensors were recently tested on an experimental building at Berkeley's shake table at the Richmond Field Station. The structure was subjected to a simulated 6.7 magnitude earthquake. Identical data were collected by CalTech using sensors that cost \$8,000 and the CITRIS sensors, which cost \$70 to produce.

Professor Bajcsy observed that non-engineers are also able to take advantage of the research that is under way at CITRIS. For example, a comparison of the NASDAQ index and the sale of books at Amazon.com shows similar performance for the period January 1, 1999 through September 30, 2001, thus providing economists with data that can lead to interesting predictions. In addition, CITRIS networking will enable the campuses to engage in distance learning through smart classroom technology.

Cal(IT)² Director Smarr informed the Committee that his decision to relocate to southern California was based upon a coupling of high growth in the information technology industry with the projected increase in UC faculty over the next ten years. He stated his intention to describe some of the Institute's accomplishments over the past year, noting that the California Institutes for Science and Technology had provided the impetus for increased cooperation across campuses and disciplines, as well as with industry. Faculty worked together to design the two new facilities for Cal(IT)² which will be constructed at Irvine and San Diego. These facilities will include clean rooms for designing tiny devices that will

contribute to major changes in medical science as well as wireless and optical networking. Cal(IT)² is examining the future of the internet as it becomes disconnected from wired systems. The intention is to extend research outside of buildings and to use the internet to create laboratories. For example, students in certain computer science and engineering classes at UC San Diego are able to interact with the teacher and each other using handheld devices that have high-speed connections to the internet. The Sixth College at UCSD will be “born wireless” in fall 2002. The campus intends to provide the Preuss School with the most advanced optical and visualization facilities that exist anywhere in the world. He added that internet video conferencing is now possible anywhere on the San Diego campus because it serves as a Qualcomm cellular internet test site.

Director Smarr discussed how researchers are addressing the serious problem of traffic congestion. UC Irvine’s Institute of Transportation Studies is working with San Diego faculty and Caltrans to form ZEVNET. Using wireless communication, 50 Toyota zero emissions vehicles (ZEVs) are able to report on traffic conditions as they travel on the freeway.

A further concern for California is its water supply. Recent data indicate that, as a result of global warming, the snow pack in the Sierra Nevada mountains could disappear over the next thirty to fifty years. This snow pack supplies 75 percent of the fresh water to the state. The Institute is working with San Diego State University, which has the County’s largest ecological preserve, to install wireless sensors in order to monitor wildlife movement. These sensors are linked to the UCSD Supercomputer Center.

Director Smarr reported that the Institutes are creating a joint plan to leverage CENIC, the State networking agency that provides the connectivity for K-12 and the universities, to come forward with a plan for an experimental optical network that would place California back in the leadership position it should have. The National Institutes of Health have come to the conclusion that information technology will be critical to the delivery of healthcare, and they have funded the first national-scale repository for brain images. The San Diego campus has been chosen by the NIH as the IT and telecommunications integration center for the country for this repository.

In concluding his remarks, Mr. Smarr noted that Cal(IT)² had assisted the Scripps Institution of Oceanography in the development of the world’s most powerful computer that is dedicated to oceanographic research. The computer will be used to study the impact of climate changes in California.

In response to a question from Regent Montoya regarding student fellowships, Mr. Smarr reported that, due to the farsightedness of the industrial partners, the San Diego campus had been able to offer summer research grants to undergraduate students in 2001. In addition, both Irvine and San Diego were able to offer first-year fellowships to outstanding students who otherwise might have enrolled at private universities. Ms. Huttner added that the

University's partners in industry see these fellowships as an opportunity to train future leaders.

Regent Davies noted that there is concern about industry involvement in academic research and asked that the next presentation on the Institutes include a discussion of technology transfer and how the academic integrity of the Institutes is being protected. Associate Vice Provost Huttner reported that the University's policies on intellectual property are being applied at all of the Institutes. Director Smarr commented on various ways in which collaboration with industry had provided researchers with opportunities that would otherwise not have been available.

In response to a question from Regent T. Davis regarding any lessons that had been learned in the process of establishing the Institutes, Director Smarr observed that arrangements made by President Atkinson with the chancellors had allowed the Institutes to move at the speed which is required to stay current with the subject matter. In addition, many of the chancellors have provided administrative staff to the Institutes to assist in areas such as human resources and grant writing. Director Bajscy added that many faculty on the campuses are using information technology in their research without being aware of each other. The Institutes will assist in bringing these researchers together.

Regent Montoya raised the issue of global competitiveness. Director Smarr reported his concern about California's not being in a leadership position in the area of ultraspeed optical networking. At a recent conference with participants from Pacific Rim countries, he learned that 80 percent of the homes in South Korea are wired with broadband, as compared with 5 percent in the United States. Canada has had an optical network initiative for five years. Cal(IT)² is attempting to identify international affiliates to form partnerships with the Institute, building upon existing UC relationships with these countries. Director Bajscy commented on the critical nature of the appropriate infrastructure.

Regent Kozberg asked how the Institutes were working with the public sector in order to benefit the state. Director Smarr reported that the Institutes are actively involved in submitting proposals to the federal government. Cal(IT)² has met with staff from the State Office of Emergency Services to see how the Institute could assist this agency. Meetings have also taken place with representatives from Caltrans and water management. Homeland defense will rely upon cooperation with the cities and counties in the state. In addition, private foundations have yet to be asked to participate, and Director Smarr anticipated that they could make valuable contributions.

Regent-designate Ligot-Gordon asked for comment on the outreach and educational mission of the Institutes. Director Bajscy commented on an experimental information technology course that was being developed at the Berkeley campus for use at UC Merced. Director Smarr added that the Preuss School was included in a \$15 million grant proposal to the National Science Foundation which would fund technology related to instruction in biology

and the earth sciences. Such technology could encourage students at the School to consider careers in the sciences at a time when the country faces a shortage of scientists.

4. **QUARTERLY REPORT ON PRIVATE SUPPORT**

In accordance with the Schedule of Reports, the **Quarterly Report on Private Support** for the period October 1 through December 31, 2001 was submitted.

[The report was mailed to all Regents in advance of the meeting, and a copy is on file in the Office of the Secretary.]

Senior Vice President Darling noted that private giving had decreased by approximately 20 percent during the first half of the fiscal year compared with 2000-01. This resulted from a combination of the State's economic slow down and the effects of September 11, 2001. Campuses are making every effort to recover and to bring this year's totals back to the levels of 2000-01.

The meeting adjourned at 12:23 p.m.

Attest:

Associate Secretary