

Opening for proposed Center for Wireless communications slated for early next year

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Media Contact: Warren R. Froelich, (619) 534-8564

OPENING FOR PROPOSED CENTER FOR WIRELESS COMMUNICATIONS SLATED FOR EARLY NEXT YEAR AT UCSD

The world of wireless communications--through which voice, data, print or even video will flow untethered via small personal devices or "people phones"--is expected to take a major step early next year at the University of California, San Diego.

In January, the Center for Wireless Communications is slated to begin at UCSD's School of Engineering, supported primarily by companies with business interests in the field. A search for a director for the new Center already has begun.

"One of the key motivations for industry is to create an educated workforce," said Laurence Milstein, a professor of electrical and computer engineering at UCSD and acting director of the proposed Center. "The Center for Wireless Communications will be a source of future employees."

Added Robert Conn, dean of the School of Engineering: "We expect the Center will establish UC San Diego as one of the top research and educational facilities anywhere for wireless communications."

So far, eight firms have signed letters of intent to participate in the Center as full members or associate members including Coded Communications, Fuji Electronics, Hughes Network Systems, Martin Marietta, Nokia, PCSI, QUALCOMM and TRW-MEAD. Nokia, the second largest manufacturer of cellular phones in the world, was the first to deliver this week its \$80,000 annual contribution toward its full annual membership fee. The company, with headquarters in Finland, has a branch office in San Diego.

"With the help of industry, we intend to start the Center in the vicinity of January," Milstein said. "Our gut feeling is that we will be able to do that."

Under their agreement, full members will participate in the direction of the Center's research through representation on the Center Board. The companies also will be offered first rights on patents emerging from the Center. Associate members, who will be assessed a flat \$15,000 fee, will be offered rights to patents only after a first right of refusal has been extended to full members.

One potential topic for study might be the establishment of high-speed multimedia networks based on wireless communications devices. According to this scenario, each person would own a small personal wireless device where a single identification number would replace telephone numbers for the home or office or car. Here, terrestrial and satellite communications links would cover the world, from the densest urban jungles to the sparsest deserts, from ship to plane, from pole to pole.

"We anticipate that the research will be set up at a pre- competitive level, where products would result five to seven years down the road," said Milstein. "It also will be of a generic nature so that competing companies will not feel uncomfortable participating in it simultaneously with their competition."

Last month, the Center received a \$500,000 anonymous gift to set up their first endowed chair in wireless communications. The gift will be used to recruit a senior faculty member to the Center. A second endowed chair also has been proposed.

"The ability to offer a chair to a potential faculty member is almost essential to attracting someone of the 'star' quality we expect, and this use of funds would give us such capability," said Dean Conn.

As envisioned, the proposed Center would concentrate on five technical areas, each directed by a senior faculty member:

- * communications theory, which involves various techniques for transmitting radio frequency signals in digital communications systems to permit a large number of users;

- * communications networks, which include ways to route messages, including the meshing of wired (fiber) and wireless networks;

- * antenna design and propagation, which encompasses such things as fixed and mobile antenna arrays, for both indoor and outdoor uses;

- * multimedia applications, which incorporate techniques necessary to allow simultaneous wireless services of voice, data and video;

- * radio frequency circuit and ASCI design, needed for low- power electronic devices and power amplifiers.

Aside from senior faculty recruited for the Center, Milstein believes another five to 10 existing faculty members in the departments of Electrical and Computer Engineering, and Computer Science and Engineering will play key roles.

--"Our plan is to set some fairly broad-based, but futuristic projects that would have multiple components in them," said Milstein. "They would require input from people in different academic areas, which is why we are trying to span five different disciplines."

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