

ОБІЖНИК - NEWSLETTER

ТОВАРИСТВО УКРАЇНСЬКИХ ІНЖЕНЕРІВ АМЕРИКИ – *НЮ ДЖЕРЗІ*
UKRAINIAN ENGINEERS' SOCIETY OF AMERICA – *NEW JERSEY BRANCH*



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UESA Members Contribute to Advances in Digital Communication

Optical fibers which can be connected as easily as speaker wires, and new types of microscopic lasers, capable of transmitting vast amounts of information at very high speeds, are among the advances in digital communication which we may see in the near future, according to the presenters at a recent technical panel organized by the New Jersey branch of the Ukrainian Engineers' Society of America, Inc. (UESA), held here on Saturday, November 4, 2000.



Andrij Wowk, chairman of the UESA New Jersey branch, opens the panel proceedings

At the same time, our ability to access ever-larger amounts of information, through such channels as the Internet's World Wide Web, means that computer users will continue to face a very human problem: finding ways to make electronic communication more "polite", effective, and understandable.

Speakers at the panel, titled "Communication in the Digital Age", included Leo Chirovsky, Ph.D. and Yuriy Shevchuk, Ph.D., both of Bell Labs, Lucent

Technologies, and Marco Shmerykowsky, P.E., of SCE Computer Solutions. The event also included a guest speaker, Mr. Orest Hanas, president of the Kobzar Society, Ltd., an organization involved in the distribution of computers in Ukraine. All of the presenters are members of the UESA. The event was moderated by Andrij Wowk, president of the UESA New Jersey branch.

Dr. Chirovsky, the first presenter, spoke on the subject of " P2I2-VCSELS -- Vertical-Cavity Surface-Emitting Lasers for an Optoelectronic VLSI Technology." His presentation included a description of semiconductors and their basic properties; the growth of semiconductor crystals; and the basic properties of lasers. These concepts were followed by a description of a specific type of semiconductor laser used for sending digital information signals: the Vertical-Cavity Surface-Emitting Laser (VCSEL).



Dr. Leo Chirovsky explains the functioning of semiconductor lasers to the audience

Dr.Chirovsky then described a new type of semiconductor laser which he is researching, known

as P2I2-VCSELs, which may be "vehicles to the potentially new and revolutionary optoelectronic VLSI technology." He stated that the advantages of P2I2-VCSELs include the ability to transmit optical digital information at extremely high rates (up to 10 gigabytes per second), considerably higher than semiconductor lasers currently in use. He ended his presentation by noting that P2I2-VCSELs have allowed researchers to enter a "new world" of unknown but exciting possibilities in digital communication.

The next step in the digital communication chain - the transmission of digital signals from one location to another -- was addressed by Dr. Shevchuk, in a presentation titled "Preparing Plastic Optical Fiber for Prime Time (in Data Applications)". Dr. Shevchuk noted that copper wire is currently easier to use than optical fibers, which are generally made of glass and require careful preparation to prevent escape of the light they transmit. However, advances in plastic optical fiber (POF), particularly in a type of low-cost, high-performance POF known as perfluorinated plastic optical fiber, may allow it to be easily used for transmission of high-bandwidth digital signals.



Dr. Yuriy Shevchuk demonstrates samples of plastic optical fiber (POF)

Demonstrating several samples of POF to the approximately 25 audience members, Dr. Shevchuk stated that the advantages of plastic optical fiber to glass fiber is simplification in its cutting, and no need for careful stripping of a coating. However, effort is still needed to ensure that the cut edges of the fiber are smooth enough to maintain adequate guidance of the light.

Dr. Shevchuk explained that by using simple, molded plastic receptacles -- similar to those used to connect wire to stereo speakers -- he was able to align the ends of plastic fibers to other equipment, with "very promising" results. He concluded that future improvements and/or simplification in the preparation and connection of POFs may greatly improve their usability.

The human link to digital communication was discussed by Mr. Shmerykowsky, who spoke on the subject of "Internet 101: The Basics of the Internet". His presentation included an overview of the Internet and how it has become a key to communication, as well as a discussion of office Internet policies. Mr. Shmerykowsky's presentation resulted in several questions of interest from the audience, on topics ranging from the creation of World Wide Web sites to e-mail security, including ways to avoid computer viruses.



Panelist Marco Shmerykowsky discusses the finer points of "e-mail etiquette" during his presentation.

Mr. Hanas urged the audience members, and the entire Ukrainian community, to support the work of the Kobzar Society, which distributes used personal computers to universities, secondary schools, and libraries throughout Ukraine. Donations to the society, either of computer hardware or money, are tax-deductible. Its address is: Kobzar Society, Ltd., P.O. Box 37, Lehigh, PA 18235.

UESA is a professional organization of Ukrainian-American engineers and other

technical and scientific professionals, with some 800 members in several branches throughout the U.S. For more information on the society, including membership information, visit the UESA Web site at www.uesa.org, or contact Andrij Wowk at nj@uesa.org.



Orest Hanas, president of the Kobzar Society, Ltd. and member of the UESA Philadelphia branch, addresses the audience



Dr. Petro Hrycak (far right), former head of the UESA New Jersey branch, talks to prospective new UESA members Alex Pidwerbetsky and Roman Barniak after the panel



Lesia Mikuta, vice chairman of the UESA New Jersey branch, during the panel discussion



UESA President Dr. Leo Dobrjianskyj (center) and

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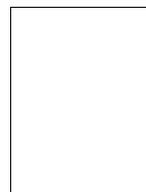
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