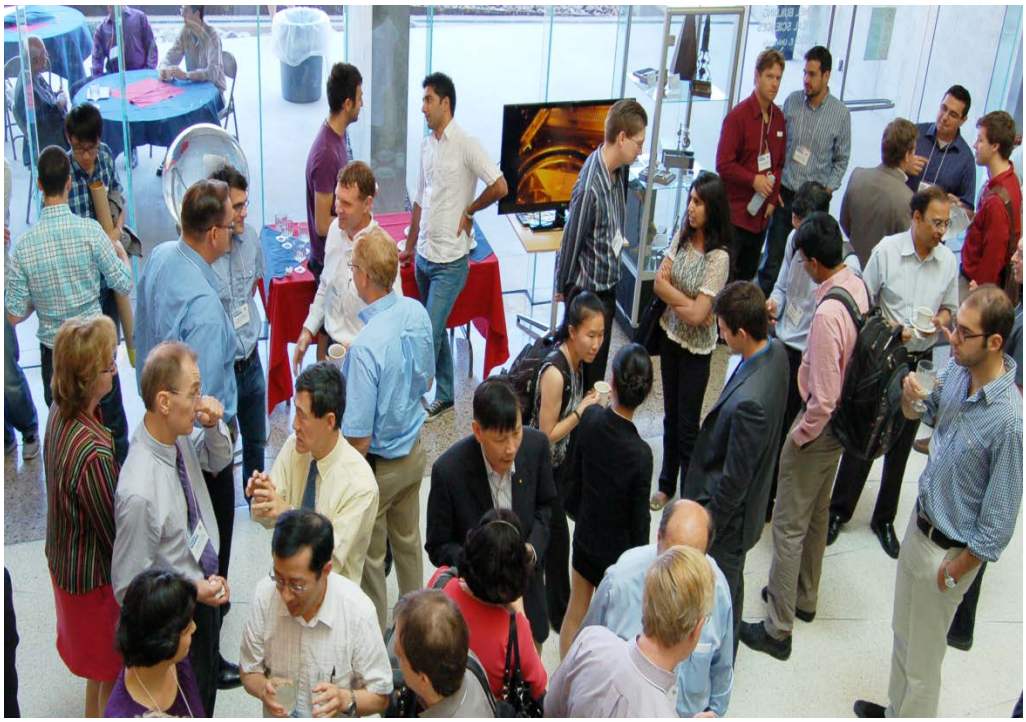

Center for Integrated Access Networks

MONTHLY NEWS LETTER

IN THIS ISSUE

Center for Integrated Access Networks Industry

I would like to welcome Our Industrial Advisory Board members to the first monthly **C**enter for **I**ntegrated **A**ccess **N**etworks (CIAN) informational update.

It is our hope that the information provided will improve your visibility into the Center's activities as well as providing information to that positively impacts the futures of your respective companies.

Over the next few months we will continue to refine our approach to delivering new information on CIAN's technical developments and activities. Your feedback on our approach and system would be very valuable and we would like to hear your comments. Our interactions with industry will help us refine these monthly mailings to bring you the most up-to-date information possible on the CIAN research and activities.

Thank You,

Dan Carothers,

Director CIAN Industrial Liaison Office

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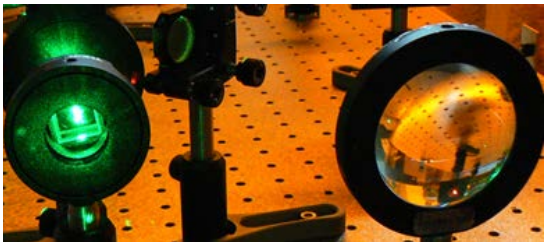
CIAN Overview

The Center for Integrated Access Networks (CIAN), a National Science Foundation funded entity, was established to create transformative optoelectronic telecommunication technologies, that will enable optical access and aggregation network systems, where virtually any application requiring any resource can be seamlessly and efficiently aggregated and interfaced, with existing and future core telecom / datacom networks in a cost effective manner and with minimal power consumption. CIAN's strategic plan has targeted the development of systems level, technology-driven, adaptable roadmap for collaborative research with industry over the next decade.



Tech Tip

You can always retrieve your login and password information by going to http://data.cian-erc.org and entering your valid email address and your login information will be sent out to you automatically.

Recent Events

On May15th CIAN hosted the NSF and various industrial partners during the year-end review for the center. This review allowed us to highlight the activities of the CIAN center during our 4th year of operation. The presentations for this meeting can be found on the CIAN web page under the Industrial Affiliates page. Instructions for accessing these are provide in the body of the email bellow.

CIAN Information Resources for Industry

This month we would like to point you to our web based data portal, www.cian-erc.org/industry.cfm . Please enter your login and password and here you will be able to find presentations and other documents from various CIAN meetings and activities under Meeting Tab. Please follow the instructions under the meeting tab. If you have any questions or comments on the information, the CIAN industrial Liaison can be contacted at dcarothers@optics.arizona.edu , or IT Manager Yousaf Riaz at yriaz@optics.arizona.edu

CIAN research

Silicon Photonic Circuits, Manufacturing and Packaging

Recently, CIAN has added a new research theme which includes si photonics manufacturing and brings with it the work of two new researchers, Michal Lipson (Cornell) and Shayan Mookherjea (UCSD) and combining some of the existing efforts of Axel Scherer (Caltech), Ming Wu (Berkeley), Connie Chang Hasnain (Berkeley), Shaya Fainman (UCSD), Robert Norwood (UA), Tom Koch (UA) and Nasser Peyghambarian (UA). This has added new capabilities for CIAN on packaging, manufacturing of Si photonic components and circuits. Examples of this new work include;

1. Optical isolators that are essential components in optical systems for eliminating parasitic reflections that are detrimental to the stability of the overall system. Preliminary results show 3dB isolation in a CMOS compatible micron size device consisting solely of silicon and silicon dioxide materials. A CIAN paper on this subject will appear shortly in Physical Review Letters. The CIAN IAB newsletter will provide information for the article when it is published.

2. Micro-ring technologies to process optical signals to be used as an add/drop filters i.e., compact devices that can add or remove a desired wavelength, or band of wavelengths, from a "bus" channel. A single resonant filter is intrinsically limited in terms of the tradeoff between passband width and the contrast, defined as the difference (in dB) between passband transmission and stop-band extinction. CIAN work has recently allowed the demonstrated 60 dB contrast with flat wide passbands (up to 4 nm wide, for a free spectral range of about 8 nm), where the pass-band to free-spectral-range ratio approaches nearly 50%. The filters were fabricated using a CMOS compatible deep UV lithography process on 200 mm SOI wafers without any disorder trimming, and occupies 0.5 mm x 0.05 mm space on a chip.

CIAN PROJECT RATINGS

Another important activity for the Industrial members is the review and rating of the CIAN core research. We would ask you to please follow the instructions bellow, which will guide you through the data access portion of the CIAN web page and allow you to provide feedback on our targeted research activities. This input is very important to our work as it helps us tailor the research direction to best serve our IAB members.

Please login to http://data.cian-erc.org using your login and password and click SAB/IAB Project Rating Tab, Here you can see all CIAN projects. You can also rate and leave feedback for individual projects.

Large Port Fiber Optic Switching,

A new project on large port fiber switching is now initiated that is being spearheaded by Pierre Blanch (University of Arizona). The switching is based on Holographic techniques and available Digital Micro-Mirror (DMD) technologies from CIAN IAB member Texas Instruments. Modern Digital micro-mirror arrays provide the high switching speed, stability, and repeatability required to develop fast, reconfigurable telecommunication switches. However, their binary orientation is an issue for conventional redirection of a large number of incoming ports to a similarly large number of output fibers. Currently, state of the art MEMs optical switches use analog mirror arrays where the mirror angle is adjusted to deflect the beam from one fiber to another one. This approach has several draw backs such as poor stability, high energy on the reflective surface that can ablate the mirror, heat dissipation, life time of the device, limited number of in/out ports. In the CIAN approach, DMD steers the incoming beams to any output fibers using binary holographic diffraction patterns. These patterns are computer generated and allow the incoming light to be formed into any shape in the output plane. This means that the light from any fiber can be redirected to any positions in the output plane. The incoming light can also be split to any position in the output plane. This technique has the potential to make a "any to any" reconfigurable switch.

If you would like additional information on either of these, please contact the CIAN industrial Liaison at dcarothers@optics.arizona.edu

Available CIAN IP

Optical packaging for optical fibers

CIAN research staff recently filed for a provisional patent on a technology that will allow simplified optical packaging of integrated photonic circuits. "Electronic Compliant Optical Packaging and Method of Manufacture" was filed by the University of Arizona office of Technology Transfer. The Technology employs easy to implement grating coupled optical interfaces, which normally require normal incident fiber packaging. The approach allows packaging of the optical fiber which is transporting these signals be oriented perpendicularly to the surface of the semiconductor die. This makes electronic packaging and integration with board level electronic circuits difficult. The invention describes a parallel coupled fiber interface to a surface grating as well as the method jigs etc.) Needed to manufacture them. This approach has additional benefits in that the physical modification can be used to simultaneously align and attach multiple independent optical fibers. It also takes advantage of the large grating spot size and close coupling of the fiber to allow a larger linear coupling diameter, reducing impact of alignment errors as well as allowing higher speed packaging of the optical interfaces to the chips.