



Nistica / Columbia meeting on December 13th

Center for Integrated Access Networks

NEWS LETTER

JANUARY 2013

Center for Integrated Access Networks Industry

CIAN student participate in Innovation Workshop

Student from the CIAN academic institutions spent two days in Los Angeles meeting with thought leader to discuss the innovation process. The students were exposed to the basic concepts of innovation, technology commercialization, entrepreneurship and evaluation of ideas for market feasibility.

On the first day of the Innovation Workshop, speakers discussed various parts of the Innovation ecosystem.

Dr. Rakesh Kumar, a Management Consultant with the von Liebig Center at UCSD presented examples of Semiconductor and Integrated Circuit Innovations used in the development and implementation of the Smartphone ecosystem at large.

Dr. James Mitchell, VP of Oracle Labs spoke on the applications of silicon photonics that impact Oracle's business model.

CIAN researchers, Dr. Michal Lipson and Dr. Mahmoud Fallahi, described experiences with technology commercialization

Dr. Kenneth Smith, the former Dean of the Eller College of Management at the University of Arizona introduced participants to the process and challenges of moving from scientific ideas and technologies to market success.

During the workshop participants evaluated various CIAN technologies for commercialization. Following the workshop, teams of researchers, MBA students and IAB members were formed to investigate and explore in detail some of the promising CIAN technologies. The team from Columbia applied and has been accepted as one of the twelve teams to participate in the program in conjunction with Columbia Business School. As part of the program the team will create a technology plan and a mini business plan for PIC circuits and Network management software. The team consists of four students from Columbia Atiyah S. Ahsan, Michael S. Wang, Howard Wang, Lee Zhu, plus two Columbia MBA students. The extended team is made up of Anthony Yeh from Berkeley, Brandon Buckley from UCLA, Quentin from Tuskegee and Brett Wingad from UCSD. Srinivas Sukumar is the research Advisor. Congratulations to the team..



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.

CIAN Downloads

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- CIAN - Annual Reports
- CIAN Annual site visit Reports
- CIAN Annual Site Visit Presentation YR4 , May 15-16 2012
- CIAN Annual Site Visit Presentation YR4 , 2012
- CIAN IAB - JAN , 24 , 2012 , Inter-Continental San Francisco
- CIAN IAB 2011
- CIAN IAB - Nov 2-4 , 2010 , Sheraton San Jose
- CIAN IAB 2010
- CIAN IAB - Nov 10, 2009 , Hotel Palomar Los Angeles
- CIAN IAB 2009

CIAN Student Jasmine Sears participates in Perfect Pitch Competition at Annual ERC Meeting

Jasmine Sears, a CIAN student from the University of Arizona, represent CIAN in the Perfect Pitch competition at the Annual ERC Meeting in Washington DC. The perfect pitch competition pitted students from all 17 ERC against each other to "pitch" a proposal related to the ERC with one slide and go seconds. Jasmine's slide and talking points are shown below.

Problem:

Silicon photonics is poised to revolutionize the telecommunications industry. But first, we need a better laser. Currently, 1500 nm light – the preferred wavelength for telecommunications – is generated externally, and then piped into the device using a series of waveguides. Unfortunately, this method takes up a lot of space. It's also lossy, which leads to higher power consumption. The CIAN ERC is developing a compact, efficient optical solution to data aggregation, and off-the-shelf components just don't cut it.

Solution:

Our group has been working to provide our ERC with an integratable, telecommunications-wavelength laser. We're using erbium, an element that emits at the desired 1500nm. By incorporating this active emitter into a special type of silicon waveguide cavity, we can turn a section of waveguide into a tiny laser. Because the cavity can replace a section of existing waveguide, it cuts volume requirements in half. And because the light is generated internally, there's little opportunity for loss.

Impact:

So, where do you come in? Simply proving this method works is worth a journal article at best. But optimizing it to outperform the industry standard would facilitate a huge breakthrough in device miniaturization. With your support, we could realize massive gains in compact, low-power telecommunications technology. So...are you interested?

Optimizing the Telecom Laser
Jasmine Sears, CIAN

Problem

980-nm pump light, dichroic coupler, erbium-doped fiber, 1535-nm output, splice, reflecting fiber end, 1500-nm VCSEL

- Wasted space
- Losses

Solution Integrate laser into Si device

Er emission spectrum

Al₂O₃-coated structures

Deposit Al₂O₃ doped with Er to create an active cavity.

Impact

- Smaller device size
- More energy-efficient
- Flawless silicon integration

Silicon waveguide cavity, 10 microns long

Acc.V 20.0kV, Spot 4.0, Magn 9094x, Det TLD, WD 5.5, Exp 0, hoomyk, 2 μm

APIC Corporation becomes a CIAN Industrial Affiliate

APIC Corporation recently became the newest member of the CIAN Industrial Affiliate team. APIC was founded in 2009 with headquarters in Culver City, CA and a newly constructed fabrication facility in Honolulu, HI. APIC's business model is focused on delivering monolithically integrated photonic-electronic circuits, microprocessors, and reconfigurable fiber networks to DoD and Federal Agencies.

Upcoming Industry Events

Upcoming Industry Events

Industrial Advisory Board (IAB) meeting in conjunction with SPIE Photonics West in San Francisco, CA.

Date: February 4, 2013. More information will be forthcoming as we get closer to the event.

Strategic Advisory Board (SAB) meeting in conjunction with OFC in Anaheim, CA.

Date: March 17, 2013. There will also be joint activities with OIDA at this year's events. We will provide additional updates as we get closer to the event.

Lloyd LaComb, Director Industrial Collaboration,
CIAN Industrial Liaison Office
llacomb@optics.arizona.edu