



MONTHLY NEWS LETTER

JULY 2012

Center for Integrated Access Networks Industry

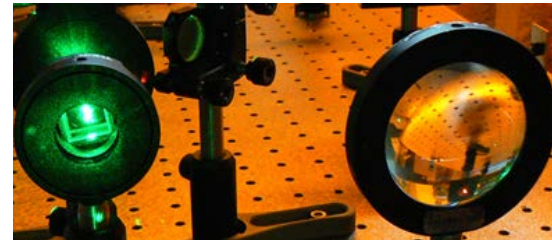
I would like to welcome our CIAN Industrial Affiliates to the July Newsletter. This month we are happy to announce that we have a new ILO Student Representative. Michael Wang ([msw2138@columbia.edu](mailto:mw2138@columbia.edu) and michael.s.wang.38@gmail.com), from Columbia University will work to represent the CIAN students to our industry members. We would also like to once again ask you to please go onto the CIAN webpage and provide your feedback on the CIAN areas of research.

Thank You,
 Dan Carothers,
 Director CIAN Industrial Liaison Office
dcarothers@optics.arizona.edu

Directed Industry Exchanges

We are looking for your feedback and participation in CIAN's ongoing industry exchange efforts. As part of this, we would ask you to participate in a new series of cross industry interactions that we hope will bring additional benefit to you as CIAN IAB members and help us define important IAB relevant requirements and metrics to guide and shape our research.

These interactions, will be targeted at helping system and sub-system integrators transmit near term (1-3 year time frame) technical needs and requirements down the chain to the component and device developers, to help them better target their next generation of products.



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

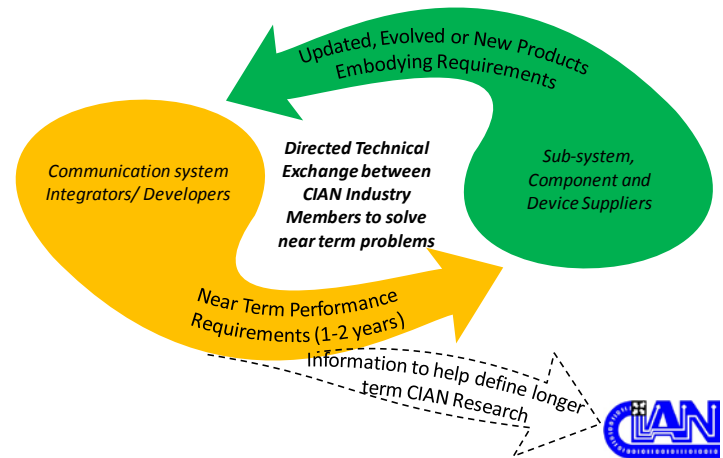
Please Login and download most-up-date presentations using your login and password: http://www.cian-erc.org/industry_meetings.cfm



Initially we are proposing 2 separate sidebar discussions. One between integrators and the electronic component and device manufactures, and one between integrators and photonic component and device manufactures.

These types of activities will help CIAN be more responsive and supportive of your company's mid and long term needs as the ERC continues in its efforts.

Please let us know if your company would be interested in taking part in these discussions and if so, what format, level and structure you would like established? For example, we can employ group level discussions or establish one on one interactions between IAB members.



CIAN Information Resources for Industry

8PSK Full Adder

Within the CIAN Working Group 2, researchers led by Joe Touch at the University of Southern California have recently completed the design of an 8PSK full-adder, and are currently implementing a prototype using discrete components. The system builds on a previous work to development the 8PSK sum, augmented with carry-in and carry-out functions required to cascade sequences of symbols. The full-adder is a key step in the development of an all-optical Internet checksum in support of the packet switched CIAN Box. USC is working with CalTech to explore the feasibility of an integrated implementation of this checksum system.

Improved Symbol Coding

Ivan Djordjevic at the University of Arizona has been working to develop improved symbol coding methods based on the robust adaptation of monitored channel impairments. This is achieved through simultaneous optimization of the LDPC code design, signal constellation design and signal constellation size will provide a path to impairment-aware, on-the-fly compensation and increased signal reach. This approach can be applied to modulation across all available degrees of freedom in optical fiber, including two quadrature and two polarization states. Further, to enhance robustness to various channel impairments (fiber nonlinearities, chromatic dispersion and PMD), we employ the turbo equalization principle. Turbo equalizer also reduces the receiver bandwidth requirement and improves spectral efficiency. By employing these concepts, we have demonstrated that by changing the constellation size and the FEC code rate, our proposed rate-adaptive four-dimensional non-binary LDPC coded modulation scheme can be adapted to achieve transmission distances ranging from 5,800 km to 8,900 km at flexible information bit rates beyond 100 Gb/s.

If you would like more information on these ongoing research efforts please contact:

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 Dan Carothers,
 Director CIAN Industrial Liaison Office
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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 below, 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.