

Call for Papers

Announcing an Issue of the IEEE *JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS* on **Optical Interconnects for Data Centers**

Submission Deadline: June 1, 2012

Moore's Law scaling of CMOS technology continues and microprocessor performance is expected to continue to increase with parallel processing of many cores on-chip. The future high performance computers (HPC) and Data Centers implemented with these processors will require terabytes/sec of bandwidth for processor to processor and processor to memory. It is expected to be increasingly difficult to meet the high-bandwidth density, low-latency, and low-energy communication requirements of these future large data centers and terascale computing systems using conventional electrical interconnects. Optical devices and optical interconnects could overcome these limitations. A significant amount of research work is being carried out in the development of optical interconnects, for computer backplane, chip-to-chip as well as on-chip optical interconnections through innovative multi-chip module component packaging as well as integration of photonic components with CMOS. At the same time research in computer architecture, and circuit design using optical networks is also being pursued. *IEEE Journal of Selected Topics in Quantum Electronics* invites manuscript submissions in the area of photonics and optical interconnect technology to meet the future interconnect requirements of the Data Center and High Performance Computing. Technical areas include but are not limited to:

- Networking architectures based on optical interconnect.
- Dynamic packet routing and switched optical network architectures
- Optically enabled functionalities for data centers
- Infiniband, and PCI Express implemented with optical interconnects.
- Low energy optical interconnect technology
- 3D stack integration, 3D optical interconnect methods
- Optical interconnect architectures to memory
- Novel nanophotonic integration methods
- Photonics heterointegration techniques
- Optical sources, detectors and waveguide device integration with CMOS
- Optical PCB, MCM, Chip-to-chip, intra-chip and Free-Space Interconnection;
- Optical microbench & Passive Alignment Technology;
- Limits of optical technologies and comparison to conventional solutions

The Guest Editors for this issue are **Ian Young**, Intel, USA; **Keren Bergman**, Columbia University, New York, USA; **Vladimir Stojanovic**, Massachusetts Institute of Technology, MA, USA; **Ashok Krishnamoorthy**, Oracle, CA, USA.

The deadline for submission of manuscripts is **June 1, 2012**; **preprints of accepted manuscripts will be posted in the IEEE Xplore website within 2 weeks after authors have correctly uploaded their final files** in the Scholar One Manuscripts "Awaiting Final Files" queue. **Final page proofs of accepted papers will be posted online in IEEE Xplore ideally within 6 weeks after the author has uploaded their Final Files, if there are no page proof corrections.** Hardcopy publication of the assembled Issue is scheduled for **March/April of 2013**.

Online Submission is Mandatory at: <http://mc.manuscriptcentral.com/pho-ieee>. Please select the Journal of Selected Topics of Quantum Electronics Journal from the drop down menu. Contributed papers should be up to eight pages in length, and invited up to 12 pages. Beyond that, a charge of \$220 per page applies. All submissions will be reviewed in accordance with the normal procedures of the Journal.

For inquiries for this Special Issue, please contact:

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The following supporting documents are required during manuscript submission:

1) PDF or MS Word manuscript (double columned, 12 pages for an Invited Paper, 8 pages for a Contributed paper.) Manuscripts over the standard page limit will have an Overlength charge of \$220.00 imposed per page. Bios of ALL authors are mandatory, photos are optional. You may find the Tools for Authors link useful: <http://www.ieee.org/web/publications/authors/transjnl/index.html>

2) Completed Color Agreement/decline form. Please email c.tanlutz@ieee.org to request for this form.

3) MS Word document list of ALL Authors FULL Contact information as stated below:

Last name (Family name): /First name: Suffix (Dr/Prof./Ms./Mr):/Affiliation:/ Dept: / Address:/ Telephone:/ Fax:/ Email:/ Alternative Email: