Increasing delay of interconnects over devices at advanced nodes indicate a need for drastic change for interconnect. Such drastic changes are possible with material changes usually, however, an orthogonal change may be near. In particular, on-chip optical interconnections may need to be introduced to be able to cope with system-scale performance roadmaps.

On-chip optical interconnect prototypes have already been shown to be possible using standard silicon-based semiconductor processing. Yet modeling, design, analysis, prediction, optimization, and CAD tool aspects require practical solutions.

In the light of these developments and needs, a special section of IEEE Transactions on CAD on Optical Interconnects is being planned for publication around April 2014. We invite you to submit your original work on optical interconnects by 9/9/2013. Please note that the special section is under a tight schedule, and this deadline is strict.

The review process will be similar to the usual TCAD review, and the quality of accepted papers should be similar to those that are published in regular TCAD issues. Following topics are of particular interest:

1. Optical interconnect prediction and optimization at various IC design stages
2. Optical interconnect design challenges and system-level design for FPGAs and NOCs.
3. Reliability prediction of optical interconnects and circuit optimization to mitigate reliability concerns
4. Topologies and fabrics of optical interconnects for multi- and many-core architectures
5. Design for manufacturability and yield techniques for optical interconnects
6. High-speed chip-to-chip optical interconnect design
7. Power consumption of optical interconnects
8. Co-integration of optical interconnects with 3D chip stacking
9. Co-optimization of optical interconnects with chip and/or package design

Submission Guidelines: All submitted manuscripts must (i) conform to TCAD's normal formatting requirements and page limit (14 pages for regular-length papers and 5 pages for short papers); (ii) incorporate no less than 30% of new (previously unpublished) material if the work has already been published in a conference or workshop; (iii) be submitted online at http://mc.manuscriptcentral.com/tcad; (iv) add to the title the prefix "O14". In your cover letter, please clearly list any preliminary versions of this work (e.g., conference or workshop versions or versions submitted to other journals/conferences/workshops) and describe how this manuscript differs from those versions. We look forward to your contribution.

Timeline
Submission Deadline: 9/9/2013
End of first round of reviews: 11/9/2013
Final decisions due: 3/1/2014

Guest Editor:
Rasit O. Topaloglu, Ph.D.
IBM
rasit@us.ibm.com