Optical Interconnects XXI (OE204)

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Papers are solicited in the following areas:

SUBSTRATE-BASED OPTICAL INTERCONNECT TECHNOLOGIES

- photonic substrate packaging and embedding for optoelectronic and micro-optical components
- optical interconnect design and system architectures, end-to-end link modeling and simulation
- electronic/photonics printed circuit boards and optical backplanes, panel level integration of photonics
- optical waveguide, substrate guided, flexible, lay-in fiber and free space optical interconnects
- machine-to-machine, board-to-board, chip-to-chip, intra-chip optical interconnects
- silicon/glass/silicon nitride/polymer made photonic interposer
- heterogeneous integration on chip/chipled-level using photonic short reach interconnects (polymer/glass/SiN)
- trends in ultra-short reach optical links
- additive manufacturing and 3D-writing of optical interconnects
- laser structuring of optical waveguides and interfaces in glass and polymer.

PIC INTEGRATION AND OPTICAL COUPLING

- silicon photonics, SiN, Ge, SiGe, III-V device integration
- high-speed and near-IR vertical-cavity surface-emitting lasers
- small size and low loss waveguide-based active and passive devices
- heterogeneous and monolithic device integration including silicon photonics
- advances in chip-to-waveguide or chip-to-fiber coupling schemes including: grating coupler, adiabatic taper and butt-coupling approaches
- subwavelength gratings for on-chip interconnect applications
- 2D membrane-based devices
- photonic crystals and surface plasmonic waveguides for interconnect applications
- new regimes involving surface plasmons or optical polaritons
- implementation of optical interconnects in Si CMOS process compatible environment
- measurement and testing methods for hybrid electronic/photonics assemblies
- reliability assessment of optical interconnects, sub-systems and electronic/photonics assemblies.
PARALLEL OPTICAL LINK MODULE TECHNOLOGIES
- single-mode conversion in data centers
- data communication systems with parallel optical links and active optical cables
- integration and packaging technologies for parallel on-board transceivers
- parallel optical engines for on-board data communication
- optical bus architectures for on-board interconnects
- ultra-low cost and ultra-low power optical links using novel laser and photodiode array components for interconnect applications
- fiber optical connectors and coupling approaches
- assembly and alignment of arrayed components
- free-space parallel optical interconnect
- mid-IR optical interconnects for free space communications and sensing
- massively distributed optical interconnects suitable for neuromorphic optical computing.

OPTICAL COMMUNICATION AND COMPUTING IN NEXT-GENERATION SYSTEMS
- optical interconnect solutions for quantum communication and quantum computing
- advanced photonic integration technologies for computercom applications
- rack- and enclosure scale disaggregation
- optically enabled hyperconverged infrastructures
- multi-tier optical connectivity
- optical packet and circuit switch technologies and architectures for data centers
- WDM and SDM switching technologies and architectures for intra-data center interconnections
- power-efficient optical computing for data centers
- future demands for parallel optics in data center: inter-rack, inter-board and inter-chip
- implementation timeline for integrated photonics roadmapping.

MICRO-OPTIC ASSEMBLY AND HYBRID PHOTONIC MICROSYSTEM MANUFACTURING
- micro-optic component assemblies and integrated micro-optics
- 3D optical routing and assembly of coupling elements
- new connectors and novel light coupling approaches
- quantum sensor integration, NV cells and atom trap devices
- prototyping for advanced interconnect fabrication
- new fiber optical integration/coupling/connectorization techniques
- fiber handling -optic components, holograms, gratings and aspherical lenses
- advanced micro
- reflective, refractive and diffractive micro-optic elements and micro-optical systems
- active optical alignment and assembly automation
- passive micro-optic alignment techniques
- solder reflow compatible connectivity
- interconnect reliability, qualification and test
- multimode fiber for single mode optical biosensing systems including coronavirus detection.

MATERIALS FOR PHOTONIC PACKAGING AND INTERCONNECTS
- advanced photonics packaging materials
- thin glass for board, modules and panel-level-packaging
- polymers and organic/inorganic hybrid materials for optical interconnects
- novel nanostructures and nanotechnologies for optical interconnects
- AuSn bonding for flip-chip with highest precision
- structured fibers, multicore fibers and other novel optical fibers
- integrated meta-material applications
- nanomaterials and applications
- novel bonding materials and processes.
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Important dates

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<td>Abstracts Submission Deadline</td>
<td>15 July 2020</td>
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<td>Acceptance Notification Sent to Contact Author</td>
<td>21 September 2020</td>
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<td>Manuscripts Due (Conferences OE506, and OE801-OE803 Only)</td>
<td>9 December 2020</td>
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<td>Manuscripts Due (All Conferences EXCEPT OE506, and OE801-OE803)</td>
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Contact information

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