Laser Resonators, Microresonators, and Beam Control XXII (LA203)

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Innovation in laser resonator design may be the solution to various scientific and technological problems, from improving the fundamental performance of laser systems to enabling new laser-based applications. Advancement in laser design can take many forms including controlling the shape of the laser beam, improving the cavity performance, and extending the laser operating range.

These features are frequently interdependent, as advances in laser system design rapidly leads to new application areas. For example, improvements in the performance of optical microresonators and optical resonator-based lasers have provided an expanding toolkit for a growing number of photonic applications including optical frequency combs, microphotonics, frequency metrology, signal processors and routers, radio-frequency, terahertz oscillators, photonic transmitters and receivers, high-rate data communication, compact range detectors (LIDARs), biochemical, inertial, and many other diverse optical microsensors. This conference provides a forum to bridge the communities of innovators in microresonator design and in microresonator laser-based applications.

Conference papers are solicited on a wide range of topics related to the conference title, including but not limited to the following:

**LASER RESONATORS:**
- active and adaptive laser resonators
- stable and unstable laser resonators for high-quality laser beams
- resonators for gas, solid state, and fiber lasers
- high-stability laser resonators.

**BEAM SHAPING AND BEAM CONTROL OF SPECIFIC LASERS:**
- mode shaping and control of diode laser beams
- fiber coupling of diode lasers
- lasers with phase conjugation
- femtosecond lasers: beam and pulse control and formation
- laser beam homogenization
- Gauss to top hat conversion
- line focus generation
- generation of application specific intensity distributions
- beam shaping of multi KW lasers
- new optical elements and systems for lasers
- laser-beam characterization and measurement of laser-beam parameters
- spatial stabilization of laser beam shapes
- beam delivery systems
- feedback and control systems for aiming, frequency stabilization, or energy absorption
- high-power and high-brightness beam delivery optics, including advanced isolators, connectors, beam switches, etc.
- high-speed beam steering devices, including KTN scanners, etc.
- advanced beam shapers and spatial light modulators for smart laser processing, etc.
- novel polarization and angular momentum state conversion devices and technologies.

Submit abstracts by 24 July 2019

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OPTICAL MICRORESONATORS: FUNDAMENTAL STUDIES AND PHOTONICS APPLICATIONS
• novel resonator topologies, fabrication methods, and material systems
• novel coupling methods
• dispersion management strategies in microresonators
• approaches to achieve or to tailor nonlinear optical phenomena.

MICRORESONATORS AND LASERS: APPLICATIONS
• enabling applications with nonlinear optics with microresonators
• microresonators for optical frequency combs, parametric oscillators and frequency conversion
• quantum optics with microresonators; microcavities in single-photon and correlated sources, quantum gates and qubits, quantum nondemolition measurements, and cavity QED
• microcavities for lasers: frequency stabilization, gain functionalization, stimulated Raman scattering
• microcavities in microwave and terahertz photonic oscillators, routers, receivers, filters
• microcavity optomechanics: stimulated Brillouin scattering, cooling, phonon lasers, and particle manipulation
• microresonators in biochemical, inertial and other optical sensors
• microcavity fabrication technologies, device integration, packaging and stability factors.

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SAVE THE DATE
Abstracts Due: 24 July 2019
Author Notification: 30 September 2019
The contact author will be notified of acceptance by email.

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