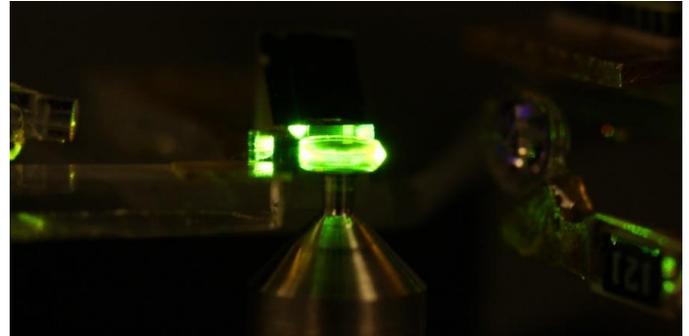


Advancing Microresonator-Based Photonics Technology at OEWaves Dr. Andrey Matsko, Chief Technology Officer, OEWaves

Abstract: Crystalline whispering gallery mode resonators (WGMRs) are characterized with kHz optical bandwidths achievable at room temperature. Such a narrow bandwidth enables their applications for generation of high spectral purity signals in both optical and radio frequency spectral domains. For instance, WGMR-based self-injection-locked semiconductor lasers can be created in visible and IR and have characteristics better than any other laser of similar size. As the result, miniature gyroscopes and clocks become feasible. WGMR-based X-Ka-band microwave photonic oscillators are characterized with spectral purity unachievable in both optical and electronic devices of similar form factor. Kerr frequency combs generated in WGMRs pumped with continuous wave light result in generation of femtosecond optical pulses on a chip. The frequency comb integrated with a miniature agile laser can be utilized for optical frequency synthesis. These and other applications will be discussed and analyzed in the presentation.

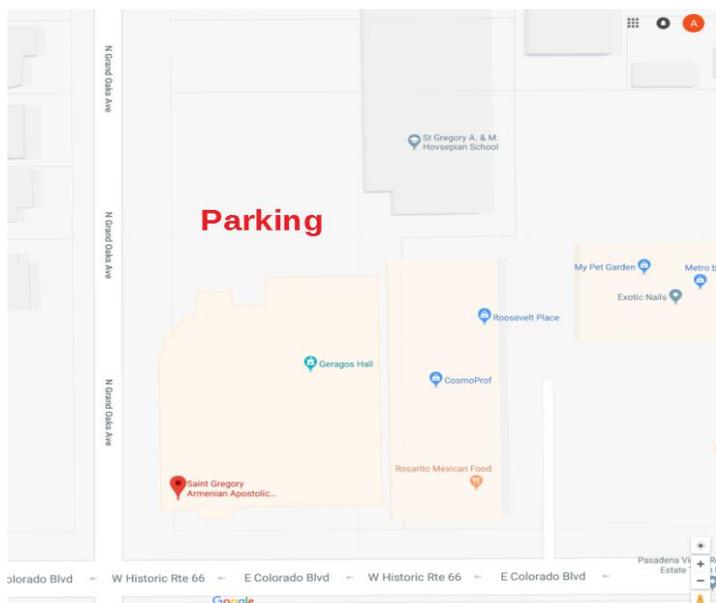


About our speaker: Dr. Andrey B. Matsko is the Chief



Technology Officer of OEwaves Inc. Dr. Matsko has actively worked in the fields of laser physics, quantum and nonlinear optics, photonics, and quantum measurement theory since 1997. He contributed to the development of technology involving crystalline whispering gallery mode resonators, including electro-optical modulators, RF photonic receivers, optical and RF photonic filters, delay lines, clocks, magnetometers, gyroscopes, oscillators, and lasers. Dr. Matsko has authored and coauthored more than 180 peer-reviewed papers as well as forty US Patents. He is a Fellow of OSA as well as Senior Member of IEEE and SPIE having h-index of 58. He received multiple awards, most notably from Jet Propulsion Laboratory the 2005 JPLs Lew Allen Award for Excellence "For seminal and unique theoretical contributions in quantum optics, in particular, the nonlinear interactions of optical crystalline whispering gallery mode resonators, leading to the

establishment of this new area of research at JPL". Dr. Matsko is also the recipient of the 2007 NASA Space Act Award in recognition of contributions to the National Space Program and the mission of the Jet Propulsion Laboratory.



Wednesday, February 13th, 2019

Reception: 6:00 pm; Dinner: 7:00 pm; Talk: 8:00 pm

Meal: Buffet Style

Dinners: \$30 members/\$35 non-members registered by Feb. 8

\$35 members/\$40 non-members after Feb. 8 (OSSC Student Members \$10 by Feb. 8, \$20 after)

Venue:

**St. Gregory Church
2215 East Colorado Boulevard
Pasadena, CA, 91107**

On-line Registration: www.osscc.org or

Contact: Alex Small
Events@osscc.org, 240-672-7639