FACSS SCIX2016 THE GREAT SCIENTIFIC EXCHANGE

SCIX PROGRAM SECTION CHAIRS

FINAL PROGRAM

CONFERENCE MOBILE APP

SPONSORS

AWARDS

PRESENTER GUIDELINES

ARCHIVE SEARCH

ARCHIVE

2016 FINAL PROGRAM
SCROLL DOWN TO VIEW ALL SESSIONS AND ABSTRACTS

SUNDAY KEYNOTE LECTURE
Democratization of Next-Generation Microscopy, Sensing and Diagnostics Tools through Computational Photonics; **Aydogan Ozcan**[1, 2]; [1]*California NanoSystems Institute;* [2]*University of California, Los Angeles*

MONDAY PLENARY LECTURES
***Spectroscopy* Magazine's Emerging Leader in Molecular Spectroscopy Award**
Serum Spectroscopic Diagnostics: The Future for Clinical Diagnostics?; **Matthew Baker**[1]; [1]University of Strathclyde
ITP Plenary Lecture
Capillary Electrophoresis for bottom-Up Proteomic Analysis of Complex Mixtures; **Norman Dovichi**[1], Liangliang Sun[1], Guijie Zhu[1]; [1]*University of Notre Dame*

TUESDAY PLENARY LECTURES
FACSS Charles Mann Award for Applied Raman Spectroscopy
Process Raman: Reproducibility Drove Capability; **Brian Marquardt**[1, 2]; [1]*MarqMetrix Inc.;* [2]*University of Washington, APL*
Coblentz Society Craver Award
Multiplexed and Quantitative Bioanalysis Using Surface Enhanced Raman Spectroscopy (SERS);**Karen Faulds**[1]; [1]*University of Strathclyde*

WEDNESDAY PLENARY LECTURES
ANACHEM Award
Metallomembranes: Exploring the Interactions of Transition Metal Ions with Lipid Bilayers; **Paul Cremer**[1]; [1]*Penn State University*
Applied Spectroscopy William F. Meggers Award
Probing Reactions Using Time-Resolved Infrared Spectroscopy in Solution and in the Solid State Using Quantum Cascade Lasers; **Mike George**[1], James Calladine[1], Raphael Horvath[1], Andrew Davies[1], Alisdair Wriglesworth[1], Xue-zhong Sun[11]; [1]*University of Nottingham*

THURSDAY PLENARY LECTURES
Lester W. Strock Award
Spectroscopy as an Important Key for Understanding Martian Paleoclimates; **Raymond Arvidson**[1]; [1]*Washington University in Saint Louis*
AES Mid Career Award
Electrophoretic Cytometry: Targeted Proteomics in Single Cells; **Amy Herr**[1]; [1]*University of California, Berkeley*

PDF of FINAL PROGRAM schedule with presentation titles
Online Planner
PDF of WHAT'S HOT VENDOR PRESENTATIONS
PDF of Poster Guidelines
PDF of Speaker Guidelines

SCIX 2016 SESSIONS AND ABSTRACTS:

Tuesday , September 20

16IR06: Quantum Cascade Lasers - I

Location: Lakeshore B

4:30 pm **QCL based liquid sensing 2.0: A single chip solution**
Benedikt Schwarz[1], Daniela Ristanic[2], Peter Reininger[1], Werner Schrenk[2], Hermann Detz[23], Tobias Zederbauer[2], Aaron Maxwell Andrews[1], Donald Craig MacFarland[2], Gottfried Strasser[12]; [1]Institute for Solid State Electronics, TU Wien, [2]Center for Micro- and Nanostructures, TU Wien, [3]Austrian Academy of Sciences

Abstract:
QCLs are compact coherent light sources with designable wavelength, which makes them attractive to realize compact sensing systems for many different applications. Integrated mid-infrared photonics enables even more compact systems, where all optical components such as source, interaction region and detector are combined on a single chip. In order to realize this, we equip a QCL active region with an additional detection capability at the laser emission wavelength. This allows a straightforward integration, where different parts of the chip are used for lasers and others for detectors. During the last years, we were able to push the performance of such bi-functional designs to reach a similar laser performance as conventional QCLs, allowing for high duty cycle operation at room-temperature.
Our sensor for liquids utilizes surface plasmon polaritons to allow a strong interaction within a short distance. Different distributed-feedback-laser/waveguide/detector units can be combined on a single chip, to use the inherent selectivity of the mid-infrared region. Based on the first generation of bi-functional quantum cascade laser/detectors, the prototype sensor is capable to detect water in isopropanol down to the ten ppm range over a wide concentration range. A much better performance can be expected with our new generation.

Back