Conference Chairs: Tuan Vo-Dinh, Oak Ridge National Lab.; Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany)

Program Committee: Larry W. Burggraf, Air Force Institute of Technology; Wim A. de Groot, Dynacs, Inc./NASA Lewis Research Ctr.; Franz L. Dickert, Univ. Wien (Austria); Fabien J. Josse, Marquette Univ.; Vassili Karanassios, Univ. of Waterloo (Canada); Gerd Marowsky, Laser Lab. Göttingen eV (Germany); Stephen J. Martin, Kent B. Pfeifer, Sandia National Labs.; Thomas W. Schneider, Science Applications International Corp.; Khalid J. Siddiqui, SUNY/Fredonia; Gerald A. Urban, Albert-Ludwigs-Univ. Freiburg (Germany); Denise M. Wilson, Univ. of Washington

Conference Secretary: Julia B. Cooper, Oak Ridge National Lab.

Wednesday 31 October

Welcome and Introduction 8:15 am
Tuan Vo-Dinh, Oak Ridge National Lab.; Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany)

SESSION 1
Room: Salon C  Wed. 8:20 am
Advanced Spectrometric and Laser-based Methods
Chair: Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany)

8:20 am: Online sensing and control of oil in process wastewater, I. Khomchenko, A. Soukhomlinoff, A. E. Selenow, Instrument Company of America Inc. [4576-01]

8:40 am: Selective detection of transition metal ions by an array of functionalized fluorescent conjugated polymer chemosensors, C. Murphy, Y. Zhang, S. Gilje, W. E. Jones, Jr., SUNY/Binghamton [4576-02]

9:00 am: Polarization-based fluorescent method for enhanced analytical determination of mixed fluorophores in fluid, Y. Yan, M. L. Myrick, Univ. of South Carolina [4576-03]


10:00 am: Stroboscopic spectral monitoring of electronic and vibrational states in dielectric systems, V. S. Gorelik, A. M. Agaltsov, A. N. Bordeniouk, P. P. Sverbil, P.N. Lebedev Physical Institute (Russia); O. N. Sharts, San Diego State Univ. [4576-06]

Coffee Break 10:20 to 10:40 am
SESSION 2
Room: Salon C  .................  Wed. 10:40 am

Advanced Environmental Monitoring Systems
Chair: Tuan Vo-Dinh, Oak Ridge National Lab.

10:40 am: Development of ecosensor for the continuous monitoring of environmental volatile organic chlorinated compounds, Y. Ishimori, Toshiba Corp. (Japan) [4576-08]


11:40 am: Multi-immunosensors based on electrolyte-insulator-semiconductor structures for determination of herbicides, N. F. Starodub, V. M. Starodub, V. E. Krivenchuk, V. F. Shapovalenko, A.V. Palladin Institute of Biochemistry (Ukraine) [4576-11]

Lunch/Exhibit Break  .............  12:00 to 1:20 pm

SESSION 3
Room: Salon C  .................  Wed. 1:20 pm

Sensor Arrays and Biosensor Systems
Chairs: Franz L. Dickert, Univ. Wien (Austria); Frances S. Ligler, Naval Research Lab.

1:20 pm: Biosensors for environmental monitoring, (Invited Paper), F. S. Ligler, Naval Research Lab. [4576-20]

1:40 pm: Novel approach for parallel reading of resonating micromechanical sensors arrays, J. P. Roger, A. C. Boccara, CNRS/ESPCI (France); M. Hennion, ESPCI (France); M. Guirardel, C. Bergaud, CNRS/LAAS (France) [4576-22]

2:00 pm: Multianalyte biosensing with a high-density live-cell array fabricated on an optical imaging fiber, I. Biran, D. R. Walt, Tufts Univ. [4576-23]

2:20 pm: Simple plastic fiber-based optode array for the in-situ measurement of ground air oxygen concentrations, M. Koelling, H. Hecht, Univ. of Bremen (Germany); G. A. Holst, Max-Planck-Institute for Marine Microbiology (Germany) [4576-24]

SESSION 4
Room: Salon C  .................  Wed. 2:40 pm

Signal Processing Technologies

2:40 pm: Wavelet-based method for the suppression force transducer signal ringing during the extensional rheology of a non-Newtonian polymer, J. R. Mackey, E. Salari, Univ. of Toledo [4576-17]

Coffee Break  ...............  3:00 pm to 3:20 am

3:20 pm: Autoranging compensation for variable baseline chemical sensors, S. McKennoch, D. M. Wilson, Univ. of Washington [4576-18]

3:40 pm: Novel data analysis aproach for temperature and strain profile reconstruction in distributed fiber optics sensors based on Stimulated Brillouin Scattering, L. Zeni, A. Minardo, R. Bernini, Seconda Univ. degli Studi di Napoli (Italy) [4576-19]

ASTM Round-Table Panel
Wednesday 4:00 to 5:00 pm
Discussion Moderators:

Fiber Optics Technical Group Business Meeting
Wednesday 5:00 to 6:00 pm

Thursday 1 November
SESSION 5  
Room: Salon C ............... Thurs. 8:40 am

**Advanced Sensor Technologies**


8:40 am: **Sensors for astrobiology**, G. H. Bearman, Jet Propulsion Lab.  [4576-12]

9:00 am: **Compact and high-resolution optical-beam deflection sensors**, A. Garcia-Valenzuela, J. Villatoro, Univ. Nacional Autonoma de Mexico  [4576-13]

9:20 am: **Superconducting quantum interference device detection of magnetically tagged micro-organisms**, H. L. Grossman, Y. R. Chemla, S. Lee, Univ. of California/Berkeley; Y. Poon, Univ. of California/Los Angeles; R. E. Bruehl, R. McDermott, W. R. Myers, Univ. of California/Berkeley; R. C. Stevens, Scripps Research Institute; C. R. Bertozzi, M. Alper, J. Clarke, Univ. of California/Berkeley  [4576-14]

9:40 am: **Intelligent systems for conveyance and storage infrastructure**, T. M. Juliano, J. N. Meegoda, New Jersey Institute of Technology  [4576-16]

10:00 am: **Transparent oxygen optodes in environmental applications at fine scale as measurement by luminescence lifetime imaging**, G. A. Holst, Max-Planck-Institute for Marine Microbiology (Germany)  [4576-37]

Coffee Break ............... 10:20 am to 10:40 am

10:40 am: **Field-effect based multifunctional hybrid sensor module for the simultaneous determination of (bio-)chemical and physical parameters**, M. J. Schoening, Forschungszentrum Juelich and Fachhochschule Aachen (Germany); A. Poghossian, Forschungszentrum Juelich (Germany); J. Schultze, Heinrich-Heine-Univ. Duesseldorf (Germany); H. Lueth, Forschungszentrum Juelich (Germany)  [4576-21]

11:00 am: **Surface phenomena with organic coatings for chemical sensing**, F. L. Dickert, W. Greibl, O. Hayden, L. Ping, Univ. Wien (Austria); U. Wolff, EPCOS AG (Germany)  [4576-25]

SESSION 6  
Room: Salon C ............... Thurs. 11:20 am

**Sensor Systems Using Sensitive Layers**

*Chair: Michael J. Schoening, Forschungszentrum Juelich and Fachhochschule Aachen (Germany)*


11:40 am: **Full 2D fractal-based approach for on-line airborne dust characterization in harsh environment**, G. Bonifazi, Univ. degli Studi di Roma La Sapienza (Italy)  [4576-43]


12:20 pm: **Enhancement in ZnS:Mn triboluminescent film intensity using ZnO as buffer layers**, B. Onwoma-Agyemann, C. Xu, Y. Liu, Kyushu National Industrial Research Institute (Japan); X. Zheng, M. Suzuki, Saga Univ. (Japan)  [4576-28]

Lunch Break ............... 12:40 to 2:00 pm

SESSION 7  
Room: Salon C ............... Thurs. 2:00 pm

**Environmental Sensing Systems**

*Chair: A. Campiglia, Oak Ridge National Lab.*

2:00 pm: **Overview of current technologies used in the environmental monitoring of soil carbon**, M. Z. Martin, S. Wullschleger, Oak Ridge National Lab.  [4576-29]

2:40 pm: **Water monitoring of polycyclic aromatic compounds by laser-excited time-resolved Shpol'skii spectrometry with fiber optic probes**, A. D. Campiglia, T. Martin, A. Bystol, North Dakota State Univ. [4576-31]

Coffee Break .................. 3:00 to 3:20 pm

SESSION 8
Room: Salon C .................. Thurs. 3:20 pm

**Chemometrics for Environmental Sensing**  
*Chairs: Khalid J. Siddiqui, SUNY/Fredonia; DeLyle Eastwood, U.S. Dept. of Agriculture*

3:20 pm: **Chemometrics and recognition technologies for spectral classification**, K. J. Siddiqui, SUNY/Fredonia; D. Eastwood, U.S. Dept. of Agriculture [4576-33]

3:40 pm: **Monitoring ecological impact of freshwater diversion projects in southeastern Louisiana using high-resolution remotely sensed data**, M. A. Lodhi, M. Prevost, Univ. of New Orleans [4576-34]

4:00 pm: **Optimization of conducting polymer arrays for single-analyte multiple-interferent applications**, D. M. Wilson, Univ. of Washington [4576-35]

4:20 pm: **Accelerating the PCA of large-data sets applied to hyperspectral imaging**, F. Vogt, FGAN-Institute of Optronics and Pattern Regonition; B. Miaiikoff, Georgia Institute of Technology; M. Tallke, FGAN-Institute of Optronics and Pattern Recognition (Germany) [4576-36]

✔️ Posters-Thursday  
The following papers will be displayed all day Thursday. Authors will be present for discussion during the formal poster session and reception Thursday evening between 5:00 and 7:00 pm. Authors may set up their posters after 9 am on Thursday.

✔️ **Temperature-sensing system of in-fiber Bragg grating with a grating scale**, F. Xie, S. Zhang, Y. Li, Tsinghua Univ. (China) [4576-32]

✔️ **Novel sensor for registration optical and x-ray images based on the non-ideal heterojunction**, V. Borshchak, V. Smytyna, N. Zatovskaya, A. Balyan, Odessa National Univ. (Ukraine) [4576-38]

✔️ **Room temperature ethanol vapor sensor based on SnO2 films**, A. P. Hakhoyan, V. M. Aroutiounian, Z. N. Adamian, R. S. Barseghian, Yerevan State Univ. (Armenia); T. Dolukhanian, Univ. of Massachusetts/Lowell [4576-39]

✔️ **Odor sensor using plasma-polymerized-film coated QCM for environmental monitoring**, H. Nanto, Y. Hamaguchi, S. Sanada, K. Nobuyama, Kanazawa Institute of Technology (Japan); T. Matsumoto, T. Tanabe, S. Kurosawa, National Institute of Materials and Chemical Research (Japan) [4576-40]


✔️ **Development of ecosensor for the continuous monitoring of environmental volatile organic chlorinated compounds**, M. Murahashi, Japan Advanced Institute of Science and Technology (Japan); Y. Ishimori, K. Kawano, Toshiba Corp. (Japan); T. Kase, M. Mouri, Shimizu Corp. (Japan); Y. Morita, Y. Murakami, K. Yokoyama, E. Tamiya, Japan Advanced Institute of Science and Technology (Japan) [4576-42]