

Electrochemical & Optical Sensors for Diagnostics & Measurements

The Sensor Institute of the University of Memphis, (**SENSORIUM**, directed by Professor Erno Lindner, focuses on developing and commercializing electrochemical and optical sensors for clinical diagnostics and for measurements of ions (sodium, potassium, lead etc.) as well as small and large molecules (CO₂, O₂, cardiac proteins, etc.) in a variety of biological matrices (serum, plasma, whole blood, urine, tear fluid etc.). Development of chemical and biosensors includes basic studies on material properties and transport as well as the design, optimization and testing of microfabricated sensors and sensor arrays for both in vitro and in vivo studies.

-Recent Projects & Publications-

Sensor for Feedback Controlled Dosing of Propofol

- J. Langmaier, F. Garay, F. Kivlehan, E. Chaum, E. Lindner, Anal. Chim. Acta, 704 (2011) 63-67.
- F. Kivlehan, F. Garay, J.D. Guo, E. Chaum, E. Lindner, Anal. Chem., 84 (2012) 7670-7676.
- F. Rainey, F. Kivlehan, E. Chaum, E. Lindner, Electroanalysis 26 (2014) 1-9.
- F. Kivlehan, E. Chaum, E. Lindner, Analyst, 140 (2015) 98-106.

Sensors for Acute Care Diagnostics

- M. Guzinski, J.M. Jarvis, B.D. Pendley, E. Lindner, Analytical Chemistry, 87 (2015) 6654-6659.
- J.M. Jarvis, M. Guzinski, B.D. Pendley, E. Lindner, J Solid State Electrochem, 20 (2016) 3033-3041.
- M. Guzinski, J.M. Jarvis, F. Perez, B.D. Pendley, E. Lindner, R. De Marco, G.A. Crespo, R.G. Acres, R. Walker, J. Bishop, Anal. Chem., 89 (2017) 3508-3516.
- M. Guzinski, J.M. Jarvis, P. D'Orazio, A. Izadyar, B.D. Pendley, E. Lindner, Analytical Chemistry, 89 (2017) 8468-8475.
- J. Jarvis, M. Guzinski, F. Perez, B.D. Pendley, Electroanalysis, 30 (2018).

Monitoring Urinary CO₂ in Septic Shock Patients

- J. Atherton, W.E. King III, M. Guzinski, A. Jasinski, B.D. Pendley, E. Lindner, Sensors and Actuators B-Chemical, 236 (2016) 77-84.

Dye-Loaded Porous Polymeric Nanocapsules with Invisible Walls

- S.A. Dergunov, B. Miksa, B. Ganus, E. Lindner, E. Pinkhassik, Chemical Communications, 46 (2010) 1485-1487.
- M.D. Kim, S.A. Dergunov, E. Lindner, E. Pinkhassik, Analytical Chemistry, 84 (2012) 2695-2701.
- M.D. Kim, S.A. Dergunov, A.G. Richter, J. Durbin, S.N. Shmakov, Y. Jia, S. Kenbeilova, Y. Orazbekuly, A. Kengpeil, E. Lindner, S.V. Pingali, V.S. Urban, S. Weigand, E. Pinkhassik, Langmuir, (2014).
- A.Q. Maclin, M.D. Kim, S.A. Dergunov, E. Pinkhassik, E. Lindner, Electroanalysis, 27 (2015) 733-744.

-Current Work-

- B. Hambly, B. D. Pendley, E. Lindner, Electroanalysis, 2018, 30, 681-689
- J. B. Sheppard, B. Hambly, B. Pendley, E. Lindner, Analyst, 2017, 142:930-7.
- B. D. Pendley, E. Lindner, Electroanalysis 2018 30, 310-313
- B. D. Pendley, E. Lindner, ACS Sensors, 2017, 2 (11), 1549-1552

-Infrastructure/Capabilities-

- Keyence VHX-1000E Digital microscope
- Asylum Research MFP-3D AFM
- Pariss Hyperspectral Imaging system.
- ECO Chemie ESPRIT SPR Instrument
- VCA Optima Contact Angle Analyzer
- CH Instruments Scanning Electrochemical Microscope



For more information please visit:

<https://umwa.memphis.edu/fcv/viewprofile.php?uuid=elindner>

Erno Lindner, Ph.D.

Phone: 901-678-5641

Email: elindner@Memphis.edu