

Contactless Conductivity Applications

Contactless conductivity detection can be used for virtually all charged species: inorganic anions and cations, as well as organic ions, such as carboxylic acids, amines, amino acids, peptides, proteins, DNA fragments, antibiotics and many other pharmaceutical compounds. Tagging or other modification of the analytes is usually NOT required, while limits of detection are often comparable to, or sometimes even better, than UV-visible absorption techniques.

The C⁴D Amp and C⁴D Detector are based on a design originally conceived by Professor Peter Hauser and co-workers at the University of Basel. Application areas are described in the research papers below.

Simple Inorganic Ions

- *Analysis of electroplating baths by capillary electrophoresis with high voltage contactless conductivity detection.* Ling Zhang, Shokoo S. Khaloo, Pavel Kubán, and Peter C. Hauser, *Measurement Science and Technology*, 17, 3317-3322, 2006.
- *Determination of major inorganic ions in blood serum and urine by capillary electrophoresis with contactless conductivity detection.* Qi Jin Wan, Pavel Kubán, Jatisai Tanyanyiwa, Andrea Rainelli, and Peter C. Hauser, *Analytica Chimica Acta*, 525, 11-16, 2004.
- *Application of a contactless conductivity detector to the determination of inorganic ions in ion chromatography.* Pavel Kubán, Marcel A. Müri and Peter C. Hauser, *The Analyst*, 129, 82-86, 2004.
- *On-site simultaneous determination of anions and cations in drainage water using a flow injection-capillary electrophoresis system with contactless conductivity detection.* Pavel Kubán, Miriam Reinhardt, Beat Müller and Peter C. Hauser, *Journal of Environmental Monitoring*, 6, 169-174, 2004.
- *High-voltage contactless conductivity detection of metal ions in capillary electrophoresis.* Jatisai Tanyanyiwa, and Peter C. Hauser, *Electrophoresis*, 23, 3781-3786, 2002.
- *Study of the determination of inorganic arsenic species by CE with capacitively coupled contactless conductivity detection.* H.T. Nguyen, P. Kubán, V.H. Pham, and P.C. Hauser, *Electrophoresis*, 28, 3500-3506, 2007.

Simple organic molecules

- *Determination of different classes of amines with capillary zone electrophoresis and contactless conductivity detection.* Xiao Yang Gong, Peter C. Hauser, *Electrophoresis*, 27, 468-473, 2006.
- *Enantiomeric separation of underivatized small amines in conventional and on-chip capillary electrophoresis with contactless conductivity detection.* Xiao Yang Gong, and Peter C. Hauser, *Electrophoresis*, 27, 4375-4382, 2006.
- *Contactless conductivity detection of selected organic ions in on-chip electrophoresis.* Jatisai Tanyanyiwa, Eva M. Abad-Villar, Peter C. Hauser, *Electrophoresis*, 25, 903-908, 2004.
- *High-voltage contactless conductivity detection of underivatized amino acids in capillary electrophoresis.* Jatisai Tanyanyiwa, Karin Schweizer, and Peter C. Hauser, *Electrophoresis*, 24, 2119-2124, 2003.
- *Monitoring of enzymatic reactions using conventional and on-chip capillary electrophoresis with contactless conductivity detection.* A. Schuchert-Shi, P. Kubán,

- P.C.Hauser, *Electrophoresis*, 28, 4690-4696, 2007.
- *Capillary electrophoresis with capacitively coupled contactless conductivity detection for low molecular weight organic acids in different samples.* W.S. Law, J.H. Zhao, P.C. Hauser, S.F. Yau Li, *Journal of Separation Sciences*, 30, 3247-3254, 2007.

Pharmaceuticals and biomolecules

- *Determination of chlorhexidine digluconate and polyhexamethylene biguanide in eye drops by capillary electrophoresis with contactless conductivity detection.* Eva M Abad-Villar, Susanne F. Etter; Michael A. Thiel, and Peter C. Hauser, *Analytica Chimica Acta*, 561, 133-137, 2006
- *Evaluation of the detection of biomolecules in capillary electrophoresis by contactless conductivity measurement.* Eva M. Abad-Villar, Pavel Kubán, Peter C. Hauser, *Journal of Separation Science*, 29, 1031-1037, 2006.
- *Detection of Human Immunoglobulin in Microchip and Conventional Capillary Electrophoresis with Contactless Conductivity Measurements.* Eva M. Abad-Villar, Jatisai Tanyanyiwa, M. Teresa Fernández-Abedul, Agustín Costa-Garcí, and Peter C. Hauser, *Analytical Chemistry*, 76, 1282-1288, 2004.
- *Direct determination of valproic acid in biological fluids by capillary electrophoresis with contactless conductivity detection.* Gamze Kavran Belin, Stephan Krähenbühl and Peter C. Hauser, *Journal of Chromatography B*, 847, 205-209, 2007.
- *Evaluation of contactless conductivity detection for the determination of UV absorbing and non-UV absorbing species in reversed-phase high-performance liquid chromatography.* Pavel Kubán, Eva Maria Abad-Villar and Peter C. Hauser, *Journal of Chromatography A*, 1107, 159-164, 2006.
- *Determination of tobramycin in human serum by capillary electrophoresis with contactless conductivity detection.* Wai Siang Law, Pavel Kubán, Ling Ling Yuan, Jian Hong Zhao, Sam Fong Yau Li, and Peter C. Hauser, *Electrophoresis*, 27, 1932-1938, 2007.