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Sensors Based on Biomembranes for the Detection of Toxins and Pollutants

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Since October 2008, experts from the United Kingdom and Croatia have cooperated in the development of a novel, *on-line*, biomembrane based sensor in which mixed lipid layer is supported on a mercury-on-platinum (Hg/Pt) microelectrode array. This provides a very sensitive but robust platform for the detection of a wide range of important biomolecules, toxins and pollutants. Hg/Pt electrodes have been fabricated on a silicon wafer platform and fully characterized as robust and stable for long periods and an improved flow cell sensor system has been constructed. In the coming months, work will continue on calibration testing of the novel system with major classes of pollutants as well as studying interferences from common interferents (e.g. humic acid, sulphide ion) which can be found in natural waters and seawater. In terms of implementation, the *on-line* sensor has already been used as early warning system for environmental/security emergencies in Leeds and it is transferred to Croatia. The first results with the system are already obtained.

Project Co-Directors:

- Prof. Laurence Andrew Nelson, University of Leeds, Leeds, U.K. (NPD)
- Dr. Blaženka Gašparović, IRB, Zagreb, Croatia (PPD)

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