BIOSENSE CONTROLLED EC-OWLS MEASUREMENTS
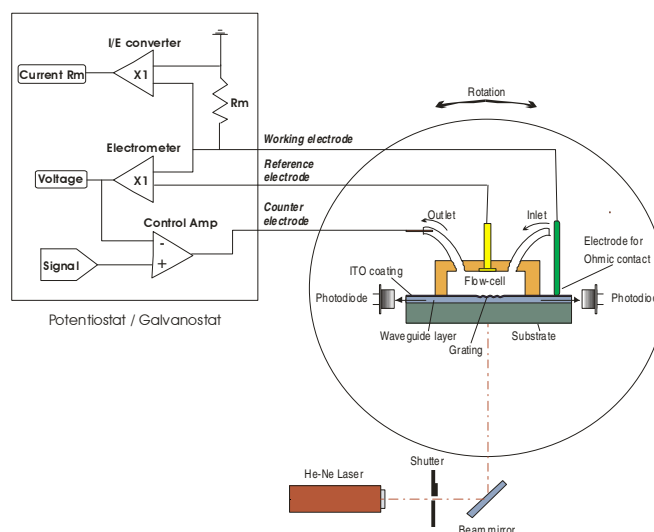

Potentiostat / Galvanostat

EC- OWLS measuring setup

- ➢ **Chronoamperometry** – Controlled potential OWLS measurement
- ➢ **Cyclic Voltammetry** – either operated alone or simultaneously with OWLS measurement

CYCLIC VOLTAMMETRY – as a stand alone measurement controlled by BioSense software

1 Initial potential
2 Initial potential time
3 Starting potential at time 2 may be equal to 1 or different
4 End potential
5 Sweep rate
6 Volts per point (set the increment of potential where measurements are made)

MicroVacuum Ltd. H-1147, Kerékgyártó u. 10. Budapest, Hungary   Phone: + 36 1 252 1991; +36 1 467 0108   Fax: +36 1 221 7996

Web: http://www.owls-sensors.com/   E-mail: info@owls-sensors.com   Copyright @ Microvacuum, 2006
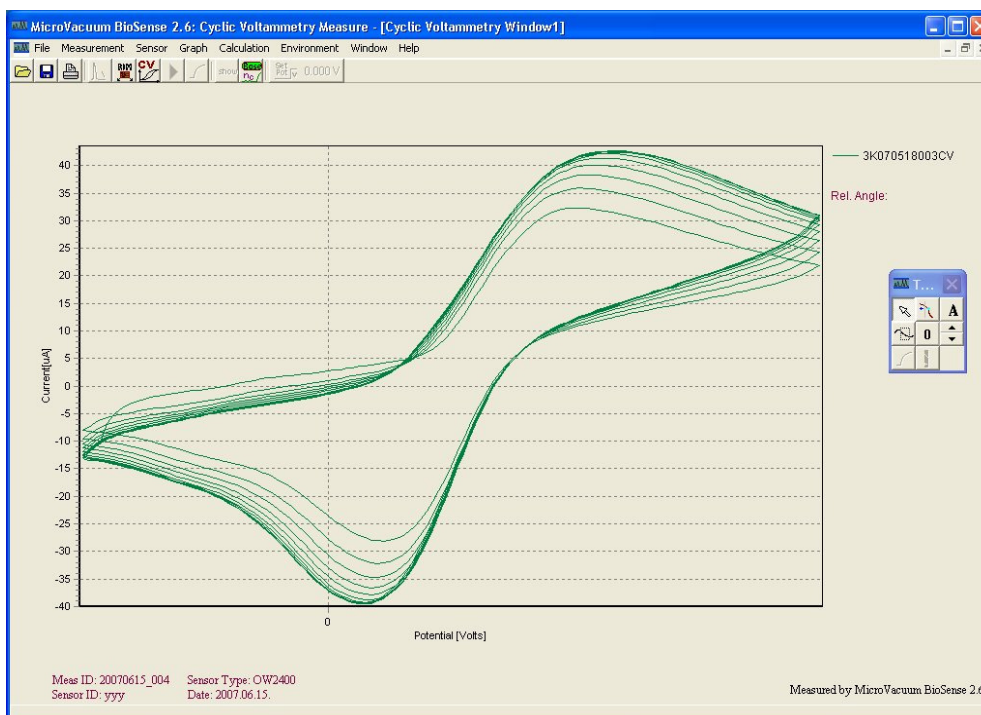
SIMULTANEOUS OWLS AND CONTROLLED POTENTIAL EC MEASUREMENT

This technique allows applying an external electric field into the flow cell. The electric field dependence of the adsorption/dessorption of proteins or other biomolecules can be studied qualitatively and quantitatively by controlled potential OWLS measurement. The value of the potential can be modified during the measurement and the resulted electric current is measured
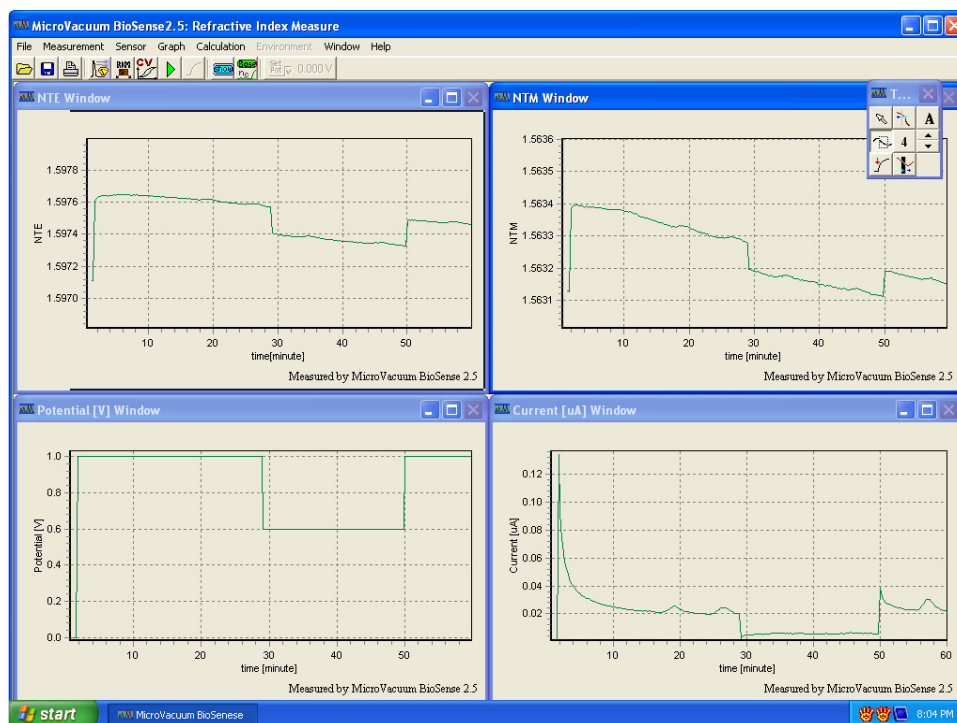
SIMULTANEOUS OWLS AND CYCLIC VOLTAMMETRY MEASUREMENT

It is possible to run OWLS measurement and Cyclic Voltammetry measurement simultaneously. The BioSense software displays the measured data of both measurements. The CV measurement parameters can be set the same way as in stand alone CV measurement.
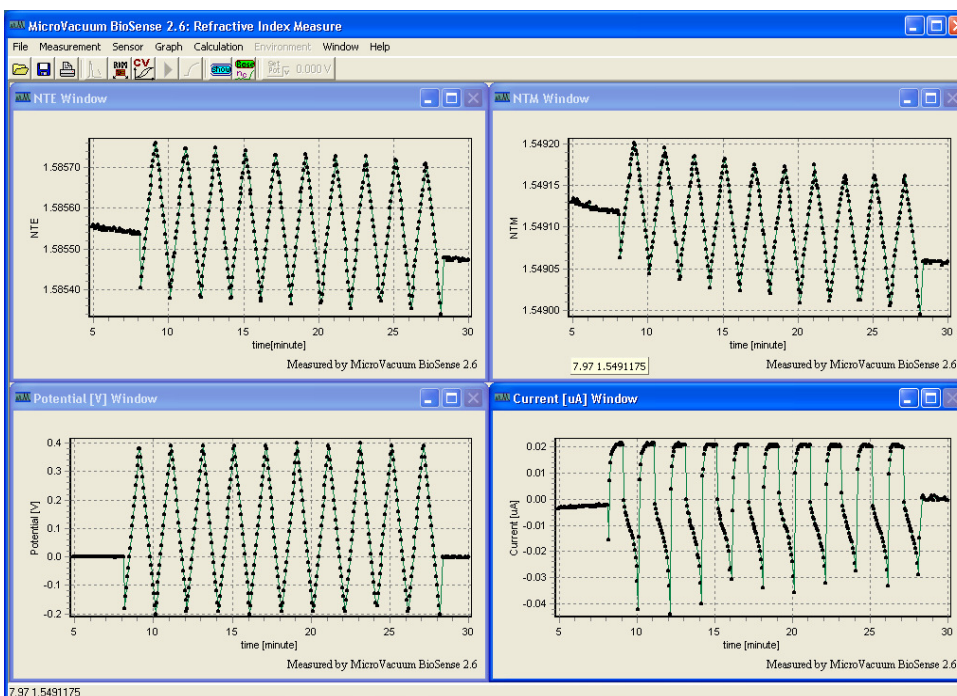
References:

1. Stankowski S., Ramsden J.J., Voltage dependent coupling of light into ITO-covered waveguides, J. Phys. D: Appl.Phys. 35 (2002) 299-302

2. Brusatori M.A., Van Tassel, P. R., Biosensing under an applied voltage using optical waveguide lightmode spectroscopy, Biosensors and Bioelectronics 18 (2003) 1269-1277

3. Bearinger J. P., Vörös J., Hubbell J. A., Textor M., Electrochemical Optical Waveguide Lightmode Spectroscopy (EC-OWLS): A Pilot Study Using Evanescent-Field Optical Sensing under Voltage Control to Monitor Polycationic Polymer Adsorption Onto Indium Tin Oxide (ITO)-Coated Waveguide Chips, Biotechnology and Bioengineering, Vol. 82, No. 4, (2003) 465-473