



**OROBOROS**  
BIOENERGETICS AND  
BIOMEDICAL INSTRUMENTS

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# **HIGH-RESOLUTION RESPIROMETRY**

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## **Oxygen-Workshop, Sep. 13-14, 1999**

**Department of Transplant Surgery, D. Swarovski Research Laboratory  
University Hospital, Innsbruck, Austria**

### **PROGRAMME**

#### *Monday, September 13*

09:15 *E. Gnaiger, Innsbruck*

#### **High-resolution respirometry – the dramatic difference**

Introductory seminar: Measurement of cellular and mitochondrial oxygen consumption; optimum design and function of polarographic oxygen sensors and respirometer chambers; on-line recording of oxygen concentration and flux; linear slope versus oxygen flux as a function of time and oxygen; measurement at low oxygen.

10:45 Coffee

11:15 **OROBOROS *Oxygraph* - instrumental function**

*Oxygraph* assembly, POS function, instrumental maintenance.

DATLAB ACQUISITION: Calibration for monitoring oxygen concentration and flux.

12:30 Lunch

14:15 Optronix

11:00 **OROBOROS *Oxygraph* - instrumental tests**

Calibration of time constant, background test and zero oxygen calibration.

14:15 **Demo experiment: Endothelial cells, permeabilization, respiratory control ratio**

Protocol according to specific interests

16:00 Coffee

16:30 **DATLAB ANALYSIS 2.1**

Background correction as a function of  $p_{O_2}$ , evaluation of linearity, smoothing, high time resolution by determination of the time constant and dynamic corrections.

Evening: **Discussion of specific applications of high-resolution respirometry**