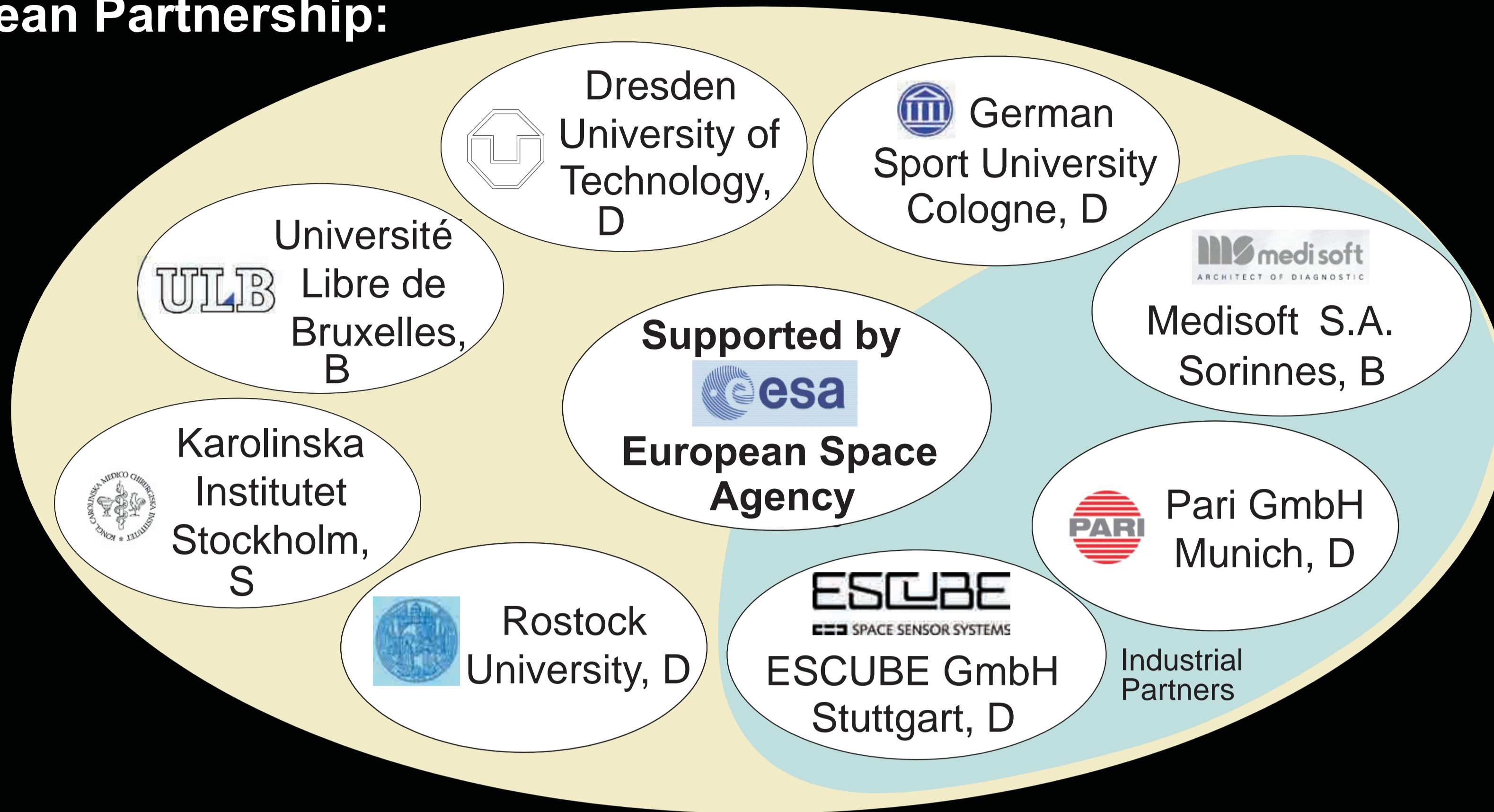


▪ Sensor System for Respiratory Investigations - RSS ▪

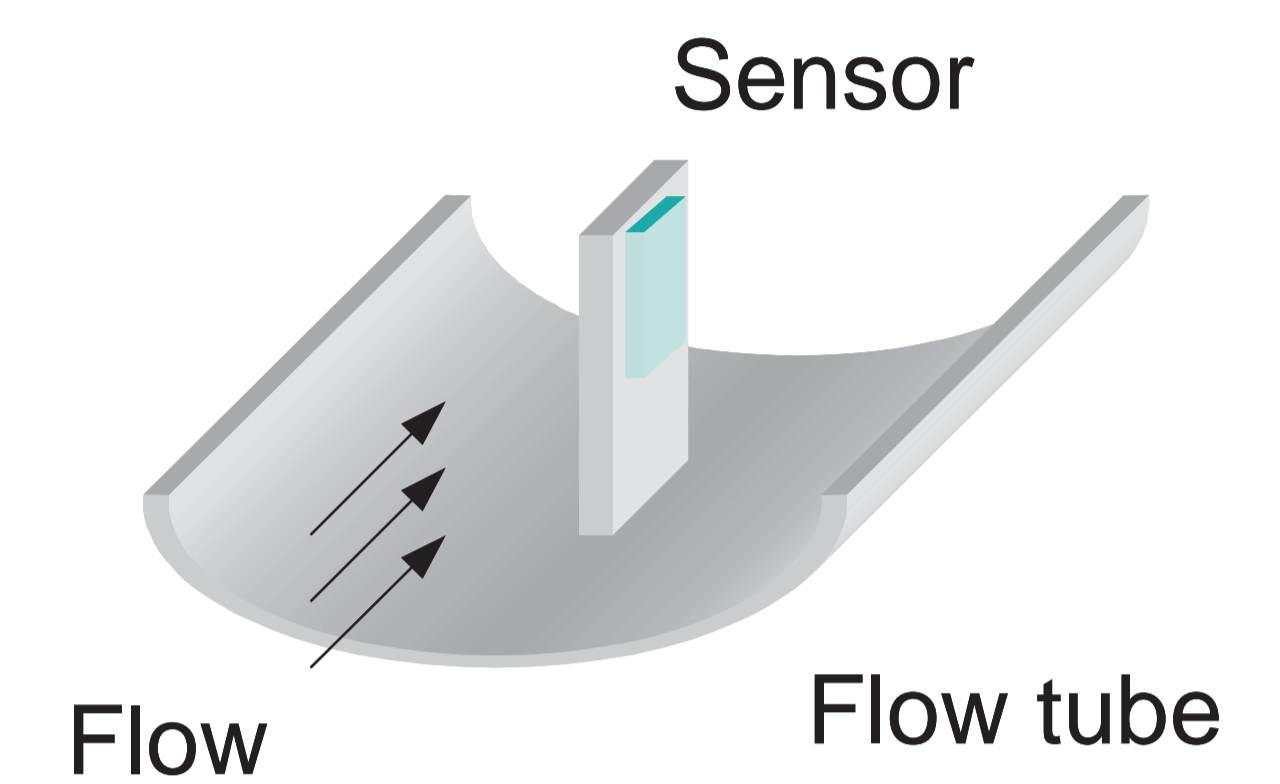
European Partnership:



Patented Measurement Principle (EP 0861 419B1)

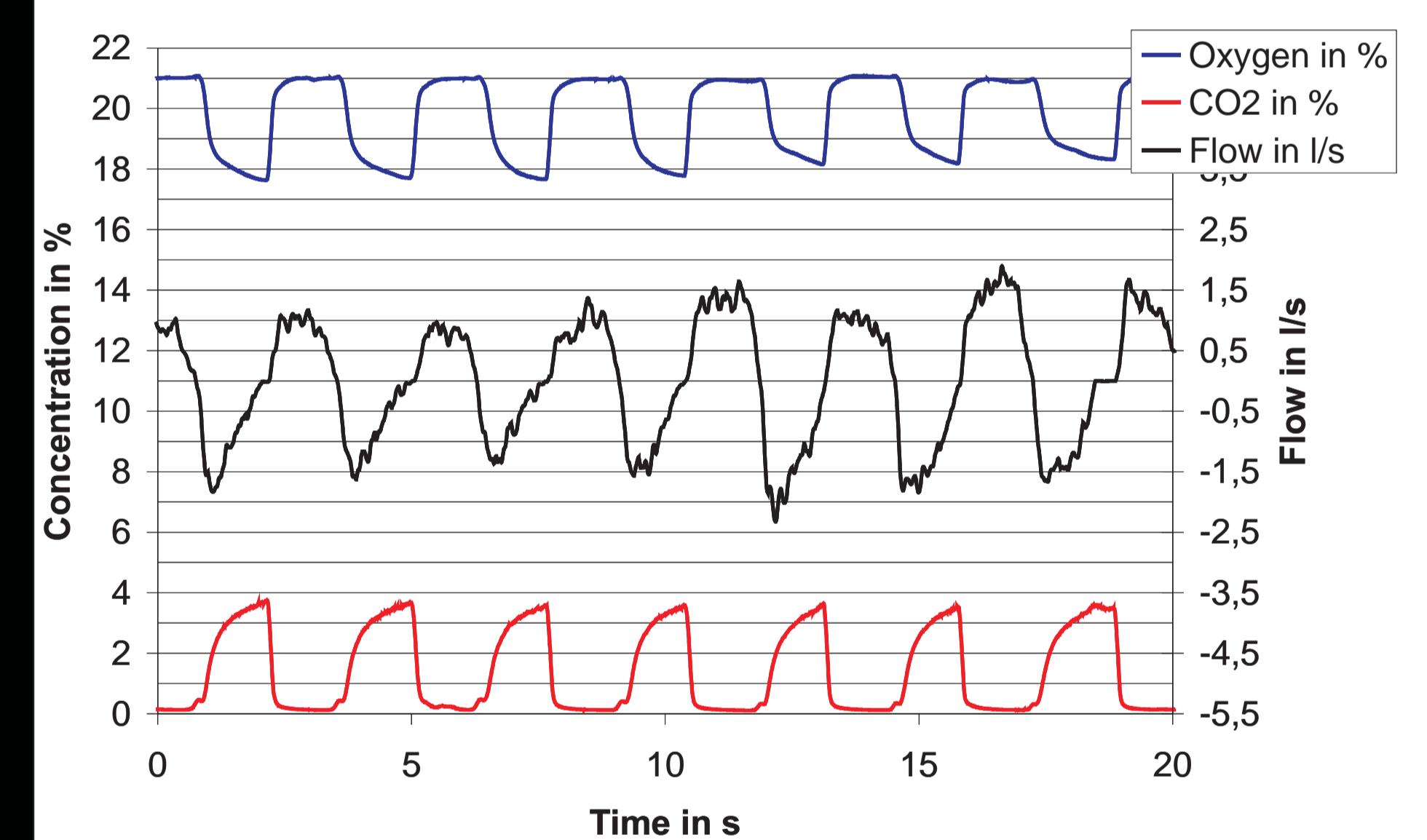
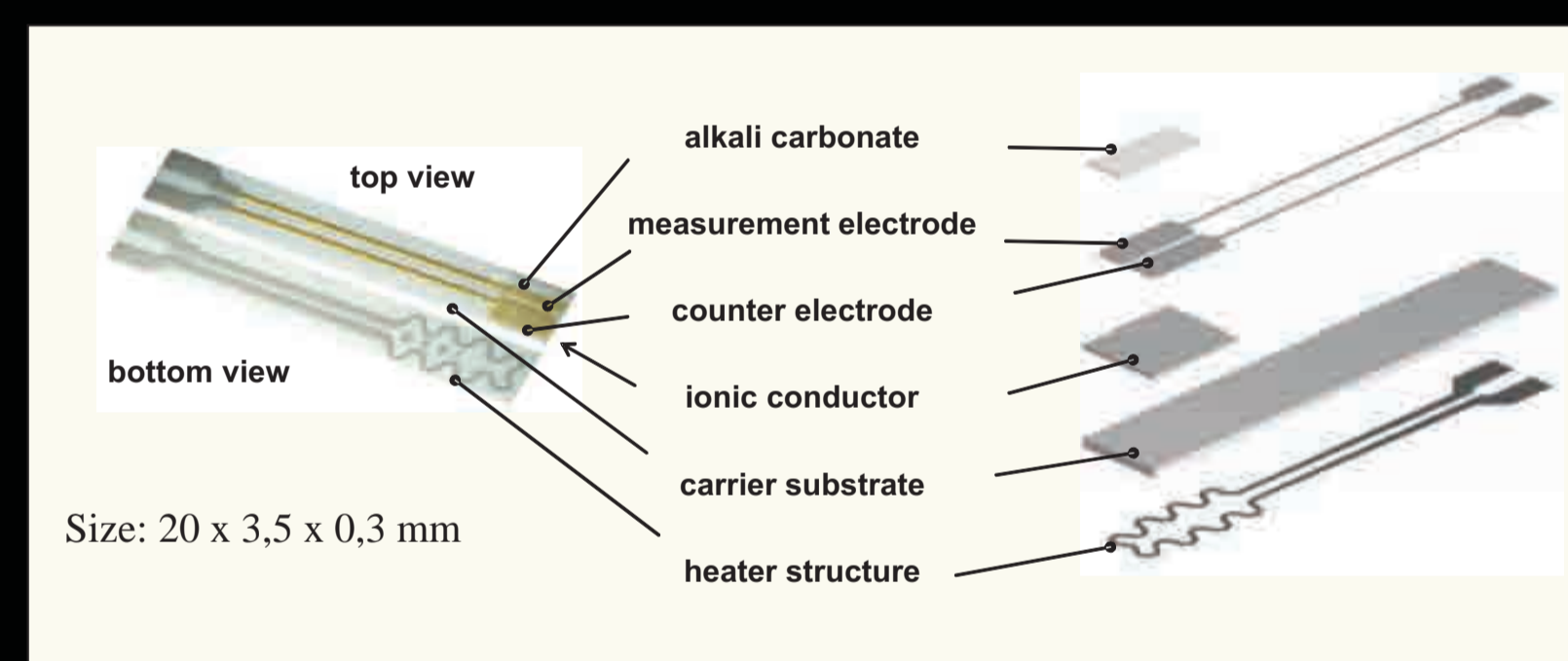
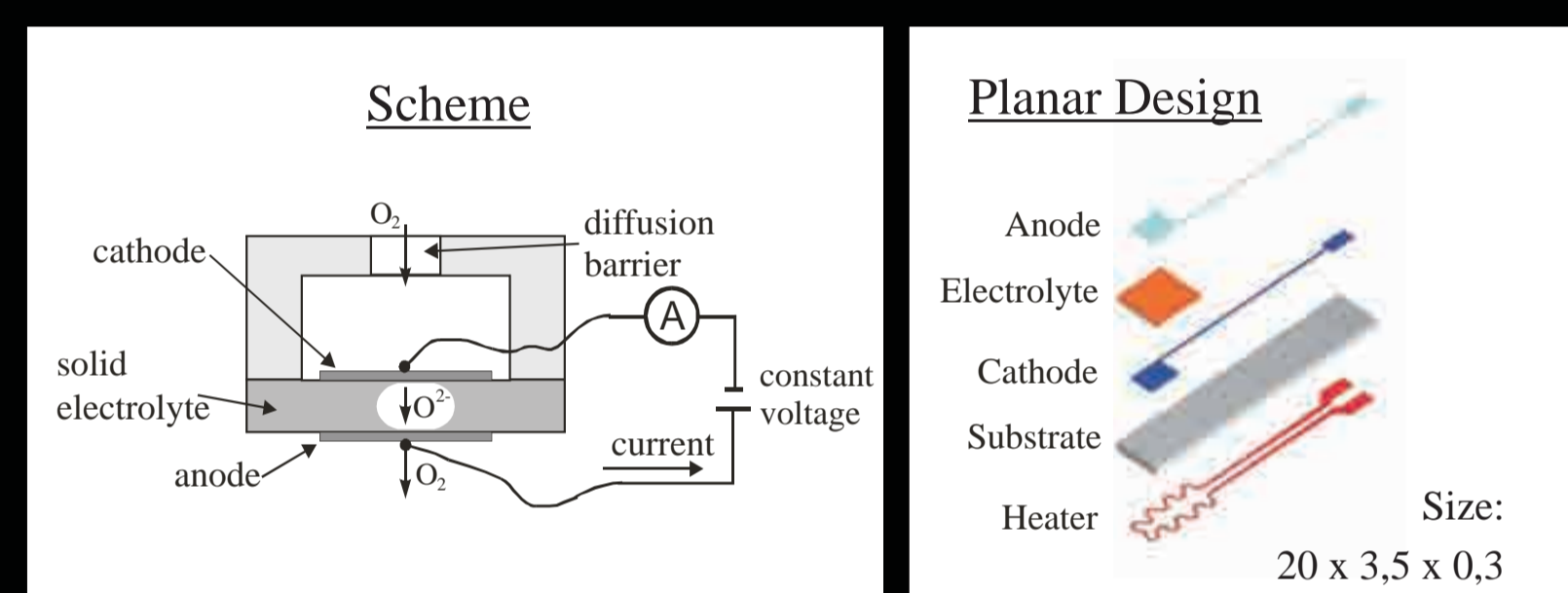
Combined measurement of

- Gas concentrations (e.g. O₂, CO₂)
- Flow rate (\dot{V})



RSS Function Principle: Solid State Electrolytes

- **O₂: Oxygen-ion conductor** (stabilised zirconia)
 - Amperometric principle
 - Diffusion limited "oxygen pump"
 - Both electrodes in the sample gas
- **CO₂: Sodium-ion conductor** (NASICON)
 - Potentiometric principle
 - Different electrode covers lead to concentration dependent voltage
 - Both electrodes in the sample gas
- **Flow: Thin film anemometry**
 - Hot surface is held on constant temperature
 - Heater power depends on flow rate



RSS Advantages:

- Measurement in the mainstream (in-situ)
- Low dead space and breathing resistance
- Low weight
 - optimal for mobile application
- High time resolution, low response times
 - Breath-by-breath analysis
- Low cost

RSS Application Areas:

- Cardiorespiratory investigations (ergospirometry)
- Lung function analysis and medication
- Fitness diagnostics
- Space physiology and medicine
- Monitoring of patients
- Rehabilitative, preventive, and occupational medicine
- ...

