



TOR VERGATA  
UNIVERSITÀ DEGLI STUDI DI ROMA

**ENVINT Srl**



*Our mission is innovation in the monitoring of air quality*



This mission, thanks to collaboration with University of Tor Vergata, is now extended to space



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PROGETTI STRATEGICI AdS AEROSPAZIO



## Company Profile

EnvInt srl is a highly technical advisory Company in the field of air pollution under the management of Dr. Ivo Allegrini, one of the leading international experts in this field.

The activity carried out by the Company includes monitoring of air quality, the analysis of air pollution data, planning monitoring campaigns, including newly developed passive samplers and advanced sensors. In addition, evaluation of new instruments for measuring gaseous pollutants and fine particles (PM<sub>2,5</sub>) is included. High level technical and scientific training on the processes of pollution of the atmosphere and on technical issues relevant to pollution monitoring is the core business of ENVINT srl.

Consultancy on the development of legislation, drafting of scientific and technical reports on air pollution control and emission sources in the civil and industrial use is also a relevant part of Company activity.

## Projects:

- Project GREENWAY
- Sino-Italian Cooperation program on PM 2.5 in Beijing
- Development of instrumentation

## Projects currently carried out by ENVINT srl

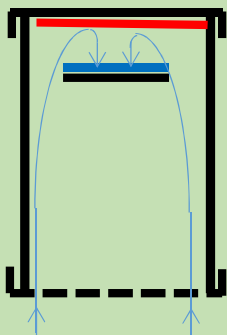
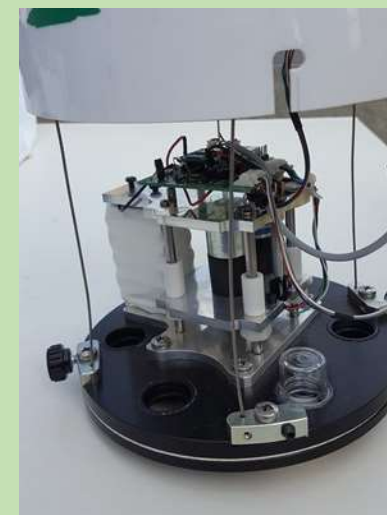
ENVINT srl is active in participating to R/D projects related to the development of new apparatuses as well as to assist private and public companies and administrations in reaching their environmental targets:

- Aerosense (POR-FESR 2014-2020)
- Ammonia monitoring network in China
- Beijing Ozone and Ozone precursors control
- Brevetti+ for the promotion of PAS06 (Automatic passive samplers exposure)

## INSTRUMENTS FOR AIR QUALITY MONITORING (1)



**Automatic  
Sampler**



**PASSIVE  
SAMPLERS**





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## INSTRUMENTS FOR AIR QUALITY MONITORING (2)



**SAMPLERS FOR  
DIFFUSION  
DENUDERS**



**FLAT DENUDERS**

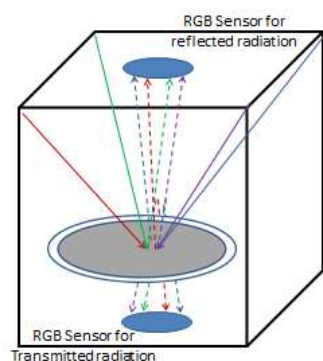


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## INSTRUMENTS FOR AIR QUALITY MONITORING (3)



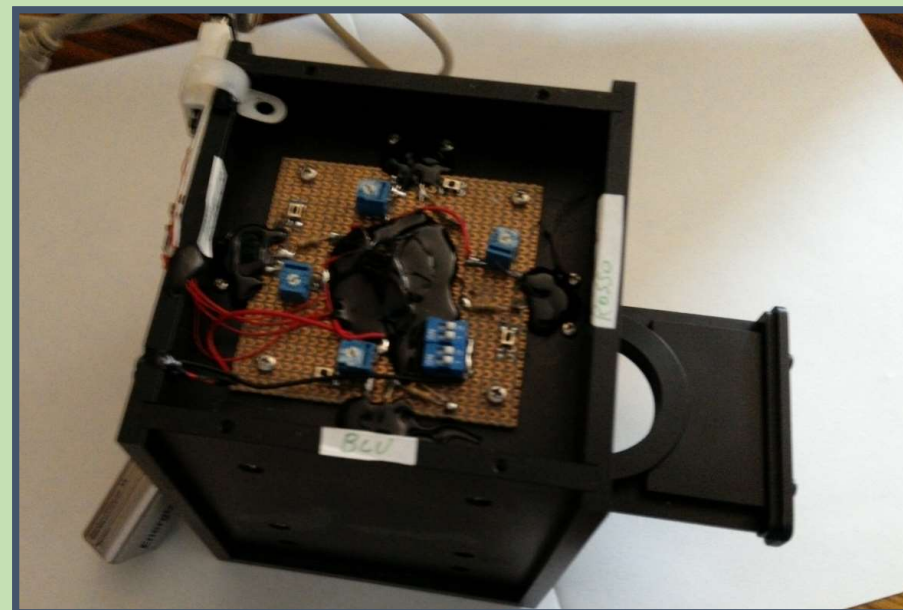
The instruments Includes:

4 radiations sources:

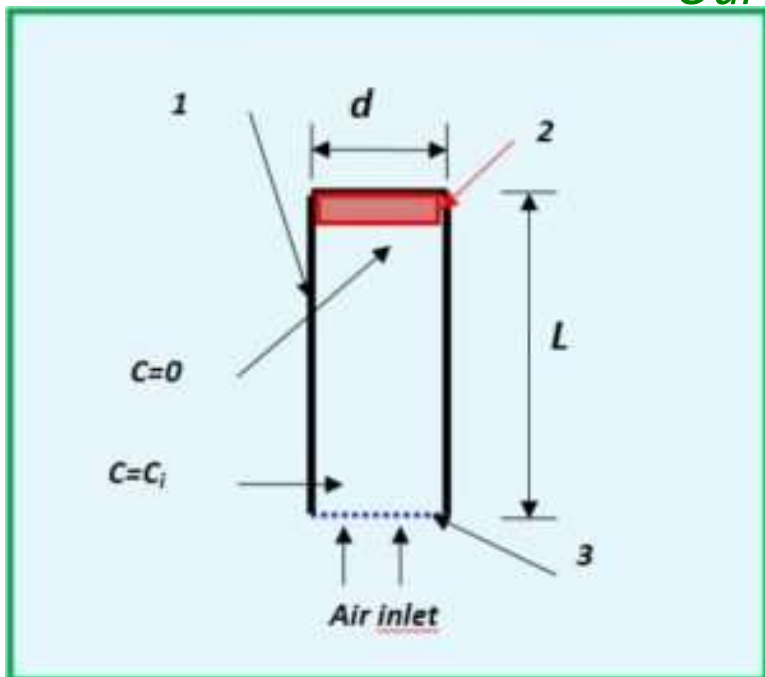
- Red/Infrared
- Yellow/green
- Blue
- UV

2 Detectors

1 Slot for filter insertion



**Measuring OC and EC**  
**(Organic and Elemental Carbon)**



A “passive sampler” (Axial type sampler)

- **Passive sampler** is a **cylindrical body (1)** having length  $L$  and diameter  $d$ . the **substrate (2)** is an **active surface** where pollutants are irreversibly adsorbed. **The screen mesh (3)** is used to **break down turbulences** so that a linear flow rate is ensured in the passive sampler body.
- **ENVINT** provides passive samplers for several pollutants of environmental interest for ambient and indoor atmosphere
- **Target of ENVINT** is the development of new generation passive samplers equipped with sensors



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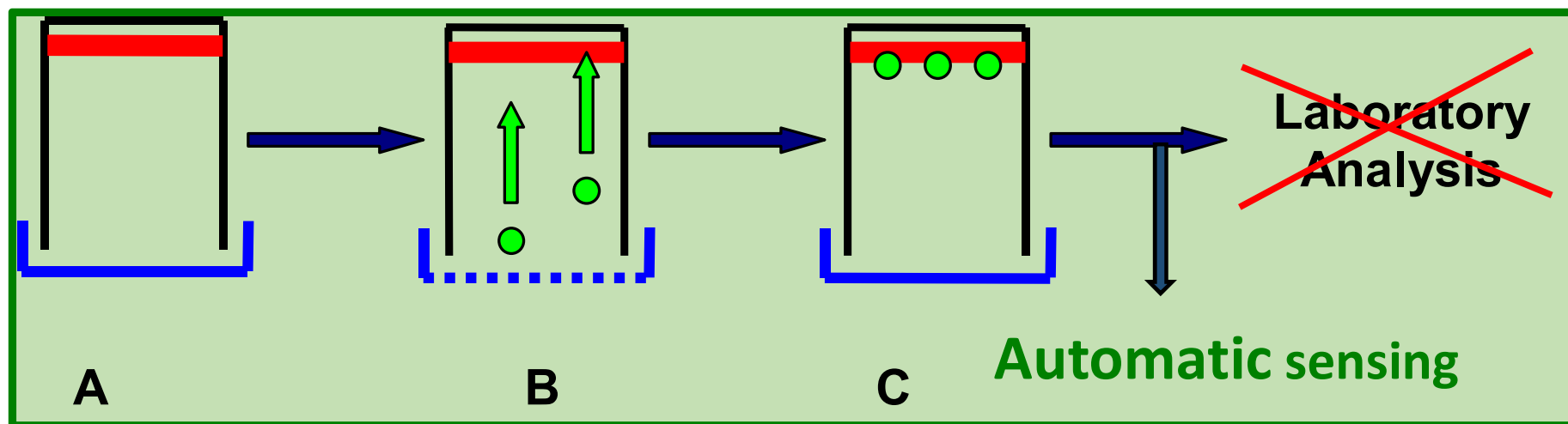
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*Our mission is innovation in the monitoring of air quality*



*Our main goal is to replace the analytical work in passive sampling with an automatic system able to provide concentrations in real time*



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## Outline

- ✓ To assemble **functionalized graphene** based gas sensitive **membranes** for the monitoring of **O<sub>3</sub>** and its precursors (NO<sub>x</sub> e COVs)
- ✓ **To engineer the Analyst sampler** modifying the passive device into the active sensors



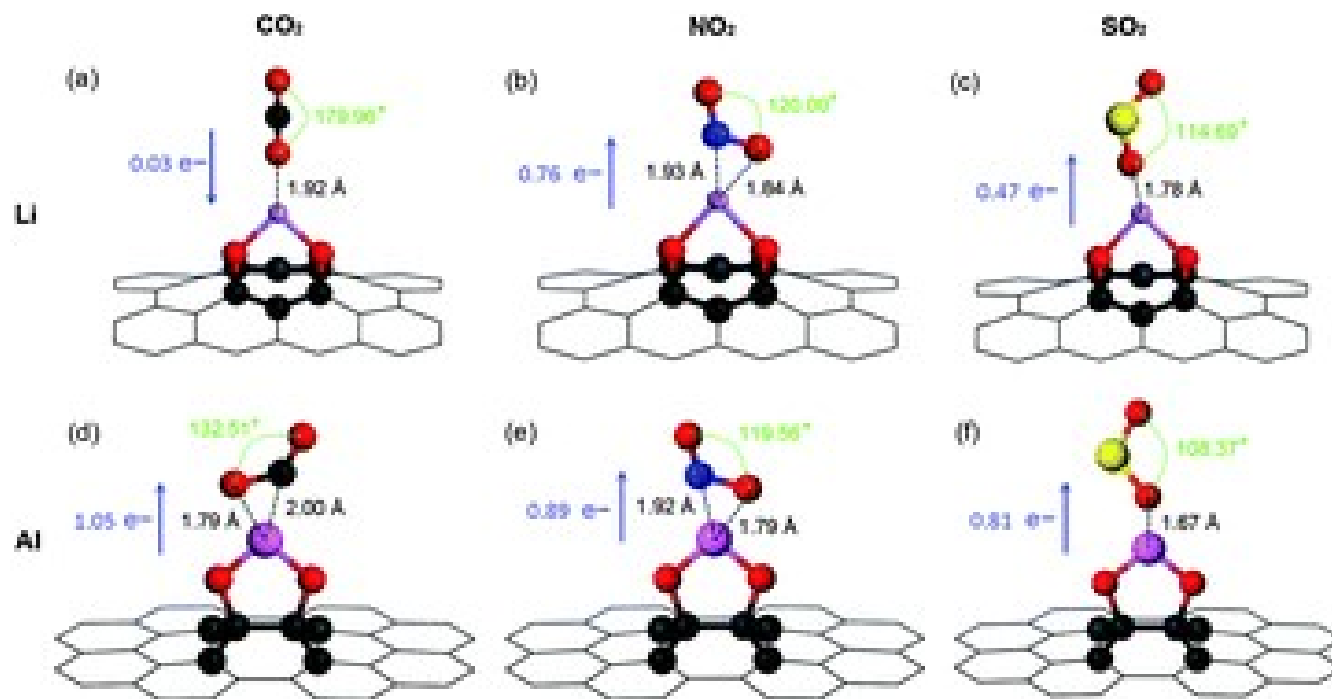
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# Chemistry Dep. Tor Vergata



Graphene Oxide based  
membranes

## O<sub>3</sub> and O<sub>3</sub> precursors



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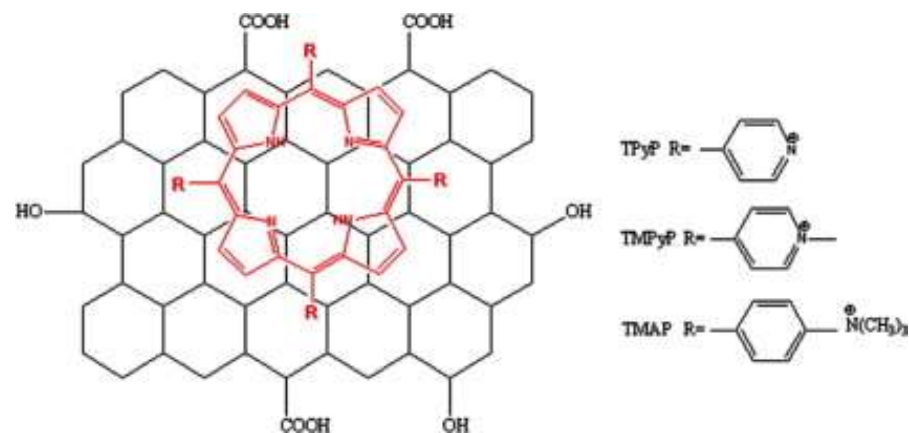
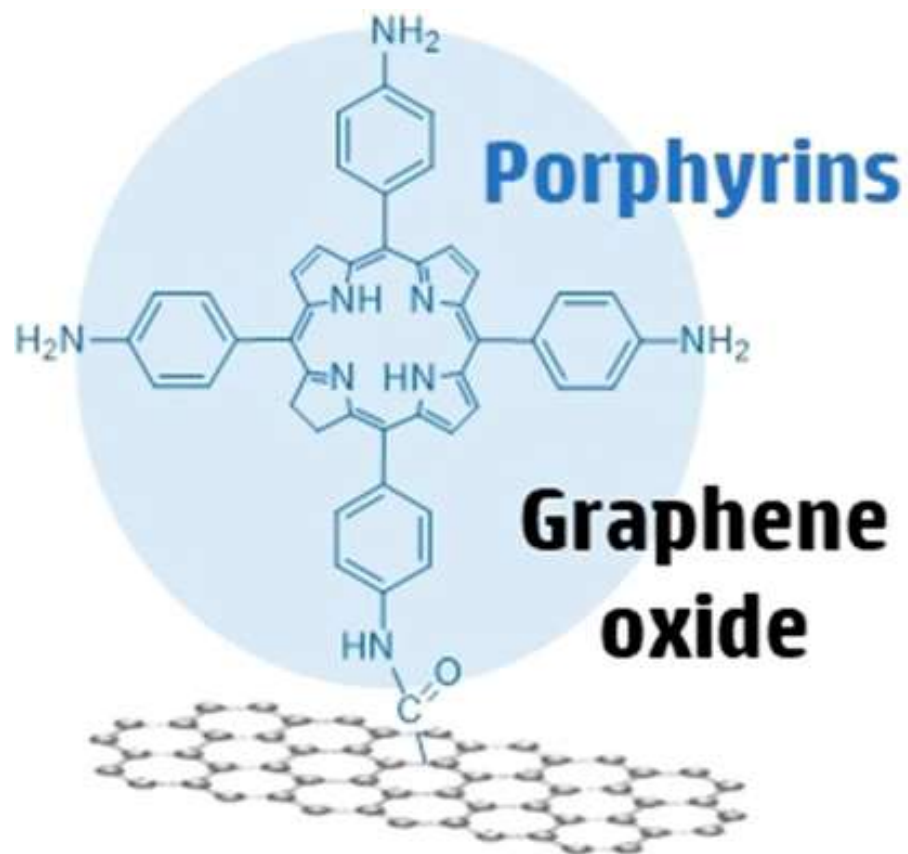


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**Highly Selective Graphene porphyrin composite materials for  $O_3$ ,  $NO_x$  and COVs.**



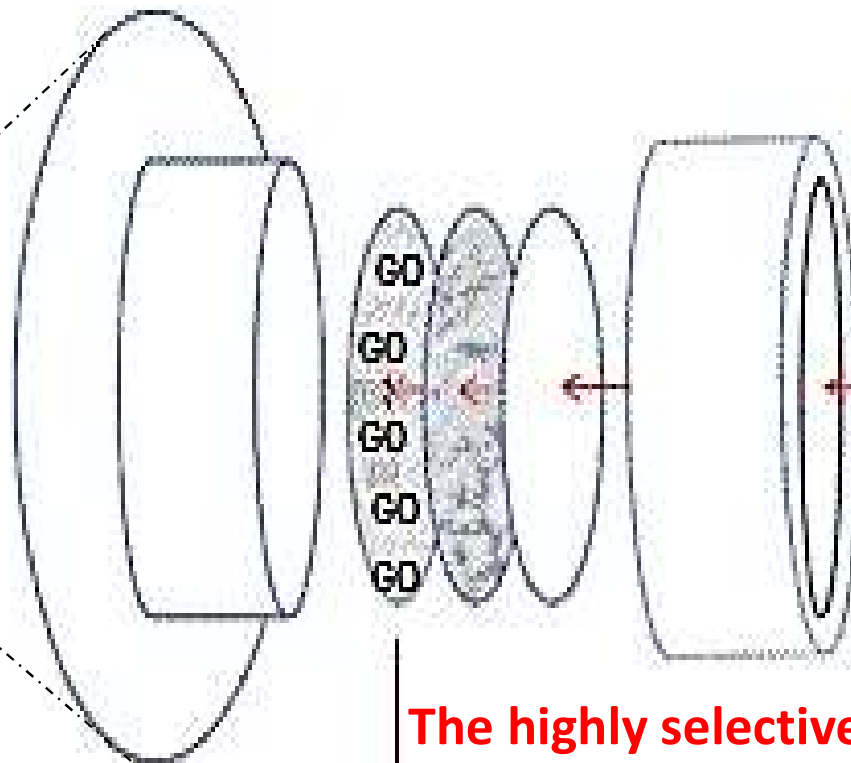
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# Analyst

**NO<sub>2</sub>**  
**VOCs**

## Clark electrochemical cell as detector

## The highly selective functionalized graphene gas sensitive membranes





# ENVINT Srl



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Terza Missione



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Dipartimento di Scienze e Tecnologie Chimiche