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**Research group**: Sciences de l'exposition

**Leader**: HOPF Nancy B.

The Exposure Sciences group is interested in the characterization of exposure to chemical, biological and physical pollutants in the workplace. The group's research focuses on the characterization of chemical, biological and physical exposures at the workplace, dermal absorption, inhalation route absorption, characterization of bioaerosols and on biological markers of exposure.

Four methods are used: sampling and measurement of airborne pollutants, biological monitoring in the workplace, computer modeling and experimental exposures in controlled environments.

Our equipment allows us to conduct research on a wide range of issues such as inhalation exposures and nuisances due to:

- Gases and vapors: solvents, anesthetic gases
- Aerosols: dusts and nanoparticles (cement, metals, phthalates, etc.), fibres, fumes (PAHs, etc.)
- Physical agents: noise, radiation (UV)

**Main research topics**

- Chemical risks: gas and vapour measurements (e.g. glycol ethers, other solvents, neurotoxicity, endocrine disruptor), aerosol measurements (e.g. photocatalytic cement, nanoTiO2, particles, tobacco products, respiratory diseases, cancer)

- Biological risks: characterization of bioaerosols (bacteria, viruses, endotoxins), respiratory and immune diseases, "One Health" approach to study antibiotic resistance (animal breeding)
- Physical risks: UV exposure (skin cancer), noise (hearing loss)
- Human toxicokinetics: inhalation (exposure chamber), dermal (permeation cells and human skin), models (Physiologically Based Toxicological models (PBTK))
- Biological monitoring: metabolites in biological matrices (pesticides, BPA, phthalate, solvents, tobacco products, etc.), oxidative stress (oil mist, tobacco products), micronuclei (wood dust, tobacco)
- Analysis of exposure determinants: type of pollutant, frequency and concentration of emission, environmental context