Organic electronics has demonstrated its long-term application potential (e.g., organic light-emitting diodes / Transistor/ sensors ...) and also promotes more exploratory concepts like (neuromorphic / chemical sensors, solar / thermal / RF energy recovery). The mechanical / electrical / optical / biochemical versatility of these materials ensures interesting properties for specific platforms / systems / substrates, unlocking breakthrough innovations related to scientific concepts in artificial intelligence, biomedicine, internet-of-objects and in sustainable environment.

Project description:

In order to achieve an electronic characterization platform for the systematic study of organic micro-sensors networks (manufactured at the IEMN) exposed to different chemical atmospheres, the mission of this MSI internship is to design a system in charge of the exposure and the control of chemical environment of our devises. Using logic addressing circuits as well as actuators (micro-vacuum pumps) and sensors (differential pressure), the objective of the internship is to achieve a micro-controlled platform (from CAD design to PCB tests) that can monitor the exposure of a chemical detection system to different fractions of volatile organic compounds. The goal is to evaluate the evaluation of a new “organic electronic nose” technology for the complex environments analysis used in medical and environmental applications.

Expected deliverables:

Electronic Circuits Design for Instant Detection of Chemical Environments