

**PhD student:**

Asma BEJI

**Title:**

Physicochemical characterization of non-exhaust particles emitted by road traffic

**Abstract**

Air quality deterioration in urban and suburban areas has adverse effects on the environment and the human health. Among road traffic emissions, non-exhaust emissions (brakes abrasion, tires and road wear, dust resuspension) have a significant contribution on Particulate Matter (PM) concentrations, which may be equivalent to, or even higher than, the exhaust emissions. Hence, since there is no existing regulation abatement on urban and suburban air quality relating to vehicle non-exhaust PM emissions, the principal objective of this work is to develop knowledge required for producing such regulations. To study non-exhaust PM emissions characteristics, three different experimental campaigns were carried out: i) in a laboratory on a chassis dynamometer; ii) on a test track with an instrumented vehicle; iii) in urban and suburban locations adjoining highly trafficked roads. The individual particle characterization was performed by an automated Scanning Electron Microscopy, and their size distributions were probed in-situ by different analyzers according to their diameter. Different parameters that have influence on these characteristics of these PM emissions will be studied like the vehicle speed, brake force/brake pad temperature, pavement texture...