**Research Topics**

**Research title:** Advanced aftertreatment systems for internal combustion engines

**Abstract:**
The aim of the research activity is the development through experimental and numerical simulation activities of advanced aftertreatment systems for PM and NOx emissions control in automotive diesel engines.

**Background and state of the art:**
Pollutant emissions from automotive diesel engines were well in hand through in-cylinder technologies through the early 2000s. However, further reductions in Diesel engine emissions then required highly efficient and reliable exhaust aftertreatment technologies. Diesel oxidation catalysts (DOC) have been the state-of-the-art for Diesel engines for a number of years. In Europe Diesel particulate filters have been used for most of a decade, and continue to increase in popularity and application. While NOx aftertreatment systems have spread through Japan as well as Europe, their application in Diesel engines in the USA is still considered for the introduction in the 2010 model year.

**Objectives:**
Different advanced aftertreatment systems for PM and NOx emissions control in automotive diesel engines will be investigated by means of both experimental and numerical simulation activities, including Diesel Particulate Filters (DPF), Selective Catalytic Reduction (SCR) systems, Lean NOx Traps (LNT).

**Reference Professor(s)**
Federico Millo
Debora Fino (DISMIC)

**International and Industrial Cooperation**
- General Motors Powertrain
- Gamma Technologies Inc. (USA)
- Powertech Engineering (POLITO spin-off)

**Research Group**
Federico Millo
Paolo Ferrero Giacominotto (assegnista di ricerca)
Debora Fino (DISMIC)
Nunzio Russo (DISMIC)

**Reference Papers**
2. MILLO F.; FINO D; RUSSO N; VEZZA D.S, DPF Loading Analysis by a New Experimental Modus Operandi, SAE TECHNICAL PAPER, 2009, ISSN: 0148-7191
CONTACTS
Federico Millo, federico.millo@polito.it