

Montanaro Alessandro bio

Alessandro Montanaro is currently a researcher at *Istituto STEMS* (former *Istituto Motori*), at CNR in Naples, Italy. His expertise is in general mechanics, fluid mechanics, thermodynamics, laser and optical diagnostics with main applications toward sprays and combustion. He leads the Spray Laboratory, and, through the years, he has acquired experience in experiments of multiphase reacting and non-reacting flows in high-pressure and high-temperature environment. The main optical diagnostics techniques used in his laboratory are Mie scattering, Schlieren, LII, LIF and Diffused back illumination which he applies to the study of fuel sprays in an optically accessible combustion vessel. Between 2011 and 2013 he has spent multiple periods of time at Michigan Technological University, U.S.A., where he has gained experience in the use of high-pressure injection apparatus spraying in a constant vessel working with laser-based optical setups for non-intrusive diagnostics under complex thermodynamic conditions. His experience in advanced diagnostics in internal combustion engines, with particular reference to the study of injection processes, the fluid dynamics of fuel sprays, and its mixing with air, has led to scientific collaborations with national and international institutions and, consequently, participation in research projects and private contracts with industrial partners.

He is an active member of the ECN Working Group and is the Italian Executive Committee representative of the IEA Technology Collaboration Program on Sustainable Combustion.

He has been involved for more than 10 years in the organization of the "Fuel Injection and Spray" sessions for several SAE Conferences such as SAE WCX, SAE International Powertrains, Fuels & Lubricants, and SAE International Conference on Engines & Vehicles.

As a regular participant to the F&L Committee Meetings, he has always been an excellent reference for the SAE organizers regarding problems inherent to the sessions he managed. In recognition of his outstanding contributions toward the work of SAE engineering events, he was awarded the Forest R. McFarland award in 2023.

He is author of more than one hundred scientific publications on the mechanisms that effect directly the fuel spray characteristics, the charge air structure and the air/fuel mixture formation process of internal combustion engines.