

**Name**

Sergio Bova

**Role**

Full Professor

**Short CV**

Prof. Bova is full professor of Mechanical Engineering and teaches Internal Combustion Engines. He was Head of the Department of Mechanical, Energy and Management Engineering and member of the Academic Senate (2012-2015), delegate of the Rector (1996/98) and president of the University Library (1995/96). He got the degree in Engineering of Industrial Technology at this University (1978) and was Visiting Scientist at the Massachusetts Institute of Technology in the year 1986-87. He has developed important experimental facilities (engine test rig; flow test rig equipped with LDA and PIV) and cooperates with companies of the automotive field. He is member of ATA since 1978 and of SAE since 1987.

**Selected Publications**

1. T. Castiglione, F. Stern, S. Bova, M. Kandasamy, Numerical investigation of the seakeeping behaviour of a catamaran advancing in regular head waves, *Ocean Engineering* 38 (2011) 1806–1822.
2. T. Castiglione, W. He, F. Stern, S. Bova, URANS Simulations of Catamaran Interference in Shallow Water ", *J Mar Sci Technol* 19 (2014) 33–51
3. S. Bova T. Castiglione R. Piccione F. Pizzonia A dynamic nucleate-boiling model for CO<sub>2</sub> reduction in internal combustion engines, *Applied Energy* 143 (2015) 271-282.
4. T. Castiglione, F. Pizzonia, R. Piccione, S. Bova Detecting the Onset of Nucleate Boiling in Internal Combustion Engines, *Applied Energy* 164 (2016), 332-340.
5. F. Pizzonia, T. Castiglione, S. Bova, A Robust Model Predictive Control for Efficient thermal management of Internal Combustion Engines, *Applied Energy* 169 (2016) 555–566.
6. T. Castiglione, F. Pizzonia, S. Bova, A Novel Cooling System Control Strategy for Internal Combustion Engines, *SAE Int. J. Mater. Manf.* 9/2 (2016) 294-302.

**Lines of research**

Research activities carried out with public (UE, IIHR- University of Iowa, CNR, MIUR, Reg. Calabria) or private Institutions (ELASIS S.C.p.A., Ferrari Gestione Sportiva S.p.A , Ducati, OMP)::

**1. Internal combustion engines**

- a) Numerical models
  - Engine cycle;
  - Variable displacement lubricating pumps (\*)
  - Cooling systems (\*)

b) Experimental investigations

- Engine test rig (\*)
- Hot Wire (HWA) and Laser Doppler Anemometry(LDA) (\*)
- Flow rig (\*)
- Lubricating pumps
- Cooling systems with electric pump (\*)

**2. Renewable Energy**

- a) Autonomous Wind Electric Pumping Systems
- b) Pumps used as Turbines (PAT)

**3. Ships hydrodynamic optimization**

- a) CFD applications to seakeeping and maneuvering (\*).

(\*) Currently carried-out