

Francesca Verga

Full Professor

Academic Discipline ING-IND/30 (Hydrocarbons and Underground Fluids)

Department of Environment, Land and Infrastructure Engineering (DIATI) of Politecnico di Torino

Scientific areas: Reservoir Engineering, Well Testing, Underground Fluid Storage, Energy Transition

Current research interests and activities are concerned with energy transition; reservoir characterization and optimization of production/injection strategies; underground storage of natural gas, CO₂ and H₂; reservoir and underground storage numerical simulation; well testing; microfluidics and nanotechnologies applied to geosciences, and environmental issues.

The research facilities are located at the DIATI Dept. and at Environment Park (www.seastar.center), located in Torino.

-
- Member of the team developing a multidisciplinary project on Hydrogen Storage (2020-ongoing) funded by SNAM-Stogit.
 - Scientific leader of a project dedicated to the energy transition, including gas storage, in line with the transition to a low-carbon and sustainable energy system. The project (2022-ongoing) is funded by the Ministry of Environment and Energy Safety.
 - Member of the Scientific Board of the SEASTAR (Sustainable Energy Applied Sciences, Technology & Advanced Research) Competence Center established by the Ministry of Economic Development, Politecnico di Torino and the Italian Institute of Technology in 2018 (www.seastar.center).
 - Member of the DeepNL International Advisory Committee appointed by the Dutch Research Council (NWO) Science Domain (2022) to revise and steer ongoing research projects funded by NWO.
 - Expert advisor for the Research Council of Norway (RCN) for reviewing grant proposals within geosciences and petroleum (2022)
 - Scientific leader of a project dedicated to the conversion of off-shore platforms, including gas storage, in line with the transition to a low-carbon and sustainable energy system. The project (2020-2022) was funded by the Ministry of Economic Development.
 - Team member in the project “Study within the Mining Effects Knowledge Program (KEM-39) on the cyclic storage of gases” for the Ministry of Economic Affairs and Climate Policy (MEA) of The Netherlands (2022)
 - Coordinator of the research center SEADOG (Safety & Environmental Analysis Division for Oil & Gas), established at Politecnico di Torino within a collaboration agreement with the Ministry of Economic Development (2015-2018).
 - Scientific leader of the research projects promoted by the Ministry of Economic Development concerned with the safety of offshore platforms for exploration and development of hydrocarbon

reservoirs and with the sustainability and environmental monitoring of hydrocarbon reservoirs.

- Since 2001, scientific leader of several research projects on underground storage of natural gas, concerned with, reservoir geomechanical characterization and modeling, well monitoring with harmonic well testing, and methodologies for enhancing gas storage performance (including delpressure).
- Reference scientific person of a Joint Research Project between Politecnico di Torino and Edison signed in 2014, which has led to the establishment of a Laboratory for the study of Reservoir Fluids and Rocks at the Edison Research Center, located in Trofarello (TO), in 2015.
- Since 2000, scientific leader of research projects on different aspects of reservoir engineering: unconventional well testing, integration of basin and reservoir geology for improved reservoir characterization; assisted history matching.

Appointed Associate Professor at the Ecole Nationale Supérieure du Pétrole et des Moteurs (IFP School) - France, in April 2005

Co-author of 3 patents:

1. Patent MI2011A000434 originally deposited in Italian: Method for recovering oil from a reservoir by means of micro(nano)-structured fluids with controlled release of barrier substances), filed March 18, 2011. Patent assignee: Eni Spa - Politecnico di Torino.
2. Patent MI2011A000435 originally deposited in Italian: Method for reducing coning in oil wells by means of micro(nano) structured fluids with controlled release of barrier substances, filed March 18, 2011. Patent assignee: Eni Spa - Politecnico di Torino.
3. Patent TO2010A000752 on harmonic pulse testing, particularly for hydrocarbon wells (deposited in Italian: Procedimento di prova di pozzo, in particolare per idrocarburi, a interferenza armonica). Authors: F. Verga, P. Fokker, filed September 14, 2010. Patent assignee: Politecnico di Torino

Co-founder of the first spin-off of Politecnico di Torino, DREAM (Dedicated Reservoir Engineering and Management) in 2004. President of the spin-off from 2004 to 2011. The company provides specialized software and services with high technological content to the energy industry worldwide (<http://www.dream-top.com/>).

Recipient of the 2011 SPE South Central and Eastern Europe Regional Distinguished Achievement Award for Petroleum Engineering Faculty

Awarded the TNO Geological Survey of the Netherlands Prize for the best scientific publication in 2005 (Fokker P., Verga F., Egberts P., New Semianalytic Technique to Determine Horizontal Well Productivity Index in Fractured Reservoirs. SPE Reservoir Evaluation & Engineering, Vol. 8, No. 2, (2005), pp. 123-131 DOI

Awarded the “2003 Ferguson Certificate for the best peer-approved technical paper of the Society of Petroleum Engineers during 2002” for the paper: Verga, F.M., G. Giglio, F. Masserano, and L. Ruvo. “Validation of Near-Wellbore Fracture-Network Models With MDT.” SPE Reservoir Evaluation & Engineering, Vol. 5, No. 02 (2002), pp. 116–125. DOI 10.2118/77298-PA

Lifetime SPE member

Affiliated with the Italian Institute of Technology

Current teaching activities at Politecnico di Torino:

Professor of *Reservoir Engineering and Underground Fluid Storage* in the Georesources and Geoenergy Engineering MSc Program

Professor of *Reservoir Engineering and Storage* and *Reservoir Engineering and Storage: Advanced Applications and Digital Techniques* at the II level Master in Natural Resources Development and Storage (MiNDS)

Professor of *CO₂ and H₂ underground storage* at the II level Master Climate Change: adaptation and mitigation solutions

Professor of *Underground Energy Storage* – PhD course