

# Sophie ROMAN

37 years old

Associate Professor (“Maître de conférences classe normale”), University of Orléans (France)

Research lab: Institut des Sciences de la Terre d’Orléans

**Keywords:** fluid dynamics, microfluidics, microfabrication, imaging, metrology, multiphase flow, reactive transport, porous media.

## WORK EXPERIENCES

From Sept. 2017 **Institut des Sciences de la Terre d’Orléans** (ISTO, France), Associate Professor at the University of Orleans, Porous Media Group.



Head of the Nano $\mu$ Lab in Orléans– a micronanofluidic facility to investigate coupled processes in porous media and address the societal and environmental challenges of the 21st century.

2013-2017



**Stanford University** (CA, USA), Energy Resources Engineering Department, post-doctoral fellow (2 years), research scientist (2 years) working with Prof. Anthony Kovscek and Prof. Hamdi Tchelepi.  
« *Dynamics of multiphase and reactive flows using microfluidic devices representative of subsurface geological environments* »

2013



**Montpellier 2 University** (France), Laboratoire Charles Coulomb, post-doctoral fellow (7 months), working with Dr. Vincent Jourdain and Prof. François Henn.  
« *Biosensor: confinement of ionic bio-channels inside a carbon nanotube for selective ion transport* »

2009-2012



**Institut de Mécanique des Fluides de Toulouse** (IMFT, France), PhD student, thesis defended in December 2012 under the supervision of Dr. Sylvie Lorthois and Dr. Frédéric Risso  
« *Flow of concentrated suspensions of red blood cells in microchannels: experimental study* ».

2009



**Sanofi**, Toulouse (France), Scientific Computing & Data Management department, internship (6 months)  
« *Acquisition, processing and image analysis* ».

## EDUCATION

2009-2012

**PhD of National Polytechnic Institute of Toulouse** (France), specialized in *Fluid Dynamics*.

2006-2009

**Master of Science in Bioscience Engineering**, Institute of Biosciences of Paris (France).

Options: biomechanics/biomaterials and bio-imaging/computer science

2004-2006

Preparatory classes in Physics, Chemistry, Mathematics, Biology and Geology for the entrance to French Engineering Schools at Lycée Ozanne (Toulouse, France)

## TEACHING & MENTORING

2017-current

**University of Orléans**, Universe Science Observatory (OSUC).

Undergraduate and graduate level (lectures and practical work): hydrogeology, reactive transport, geochemistry of natural waters, transport laws and fluid mechanics, modeling of groundwater flows, field course in hydrogeology.

2015

**Stanford University**, School of Earth, Energy and Environmental Sciences.

Lecture in the Flow through Porous Media Laboratory class (ENERGY 120A): experimental fluid mechanics in porous media.

2009-2012

**Paul Sabatier University** (Toulouse, France), Department of Physical Measurements, 64 hours/year Undergraduate level (practical works): Electricity, Optics, Solid mechanics.

### Supervision of graduate students (MSc, 2 to 6 months internship)

Year	Name	School	Next position
2023	P. Pichard	University of Orléans (FR)	MSc University of Orléans
2023	K. Dezert	University of Orléans (FR)	MSc University of Orléans
2022	W. Okaybi	University of Pau et des Pays de l'Adour (FR)	PhD student, University of Orléans
2022	U. Moreau	University of Orléans (FR)	PhD student, University of Orléans
2021	V. Gredicak	Montanuniversität Leoben (AUT)	Ph.D. student, University of Orléans
2021	N. Bernard	Saint-Étienne School of Mines (FR)	Ph.D. student, University of Orléans
2020	V. Pluvy	University of Orléans (FR)	MSc University of Orléans
2020	J. Alves	University of Orléans (FR)	Engineer ABO group
2018	A. Ferrah	University of Lorraine (FR)	Engineer at Gaztransport & Technigaz
2018	A. Vella	University of Orléans (FR)	Ph.D. student, University of Orléans - BRGM
2015	P. Louazel	ENSTA ParisTech (FR)	Aero-Hydro Engineer at Principle Power (USA)

### Supervision of PhD students and postdoctoral fellows

2023-2026	Mohamadou Sarr, PhD student, director
2023-2026	Walid Okaybi, PhD student, co-supervisor
2022-2025	Nathan Bernard, Ph.D. student, director
2021-2024	Viktor Gredicak, Ph.D. student, director
2021-2022	Flore Rembert, Postdoctoral fellow, co-supervisor
2020-2022	Khaled Brimo, Postdoctoral fellow, co-supervisor
2019-2022	Mahdi Mansouri-Boroujeni, Ph.D. student, director

## AWARDS

2013	<b>Léopold Escande Prize 2013:</b> best thesis in Engineering, National Polytechnic Institute of Toulouse.
2012	<b>Best Poster Prize,</b> 37th Annual Meeting of the Biomechanics Society.
2009	<b>Ph.D. excellence scholarship</b> from the French Ministère de l'Enseignement Supérieur et de la Recherche.

## INSTITUTIONAL RESPONSIBILITIES & REVIEWING ACTIVITIES

**Editorial Board** of Interpore Journal

**Responsible of 5 teaching courses** (University of Orléans): Hydrogeology (bachelor), Geochemistry of natural water (bachelor), Hydrogeology (MSc), Reactive transport (MSc), Hydrogeology field camp (MSc)

**Reviewer for proposals:** National Science Foundation (NSF), American Chemical Society Petroleum Research Fund (ACS PRF), Agence Nationale de la Recherche (ANR)

**Reviewer for peer-reviewed journals:** Chemical Engineering Science, Scientific Report, Transport in Porous Media, Fuel, Advances in Water Resources, Sensors, Water Resources Research, Chemical Geology, Journal of Colloid and Interface Science, Oil & Gas Science and Technology

**Co-convenor** of a minisymposium at Interpore 2022 and 2023 "Microfluidics and nanofluidics in porous systems".

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2021-now	France Interpore Chapter: elected member of the steering committee
2013-now	Member of Interpore, International Society for Porous Media
2014-now	Member of AGU, American Geophysical Union

## RESEARCH GRANTS

2022-27: ERC Starting grant (PI), "TRACE-it", 1,5 M€

2022-26: ANR JCJC (PI), "GéoMIME", 220 k€  
2021-24: CNRS Miti 80|PRIME (PI), "INTER-AQ", 150 k€  
2021-23: CNRS Miti Captage, stockage et valorisation du CO<sub>2</sub> (PI), "EsCapaDeS", 36 k€  
2020-22: CNRS Miti Changement climatique (co-PI), "CaraMBar", 25 k€  
2020-25: ANR Labex Voltaire (PI), field course for master students, 30 k€  
2020-21: ANR Labex Voltaire (co-PI), "Plasma-hydrophile-Géologie", 25 k€  
2020-21: ANR Labex Voltaire (PI), "POP", 25 k€  
2019-22: BRGM (Service Géologique National) PhD grant, 120 k€  
2019-2021: PHC Procopé (Campus France) joint program France-Germany, 7.4 k€  
2019-2020: PHC Alliance (Campus France), joint program France-UK, 3 k€  
2018-2023: ANR (Resp. task), "CATCH", 600 k€

## INVITED CONFERENCES AND SEMINARS (SELECTION)

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2023 **Conference**, AGU Fall Meeting, San Francisco (US), invited speaker.  
2023 **Keynote speaker**, Journées d'Etudes des Milieux Poreux (Rueil-Malmaison, France)  
2022 **Conference**, AGU Fall Meeting, Chicago (US), invited speaker.  
2021 **GeoScience & GeoEnergy Webinars**, invited by Prof. S. Geiger and H. Hajibeygi.  
2020 **Webinar**, PoreLab, Norway, invited.  
2019 **Conference**, AGU Fall Meeting, San Francisco (US), invited speaker.  
2019 **Conference**, Microfluidics 2019: from laboratory tools to process development (France), invited speaker.  
2019 **Seminar**, Soft Materials Coffee Hour, Princeton University (US), invited by S. Datta.  
2014 **Seminar**, ARTORG Center, University of Bern (CH), on invitation of Prof. D. Obrist.  
2014 **Seminar**, Fluid Mechanics Institute of Toulouse (FR), invited by Prof. M. Quintard.