



Rodolfo Repetto

Associate professor

✉ rodolfo.repetto@unige.it

☎ +39 0103532471

Education and training

1996

Ms in civil Engineering

Formation of fluvial bars in the presence of suspended load - 110/110 cum laude

University of Genoa - Genoa - IT

2000

PhD

Unit processes in braided rivers

University of Padua - Padua - IT

Academic experience

1998 - 2009

University of L'Aquila

University of L'Aquila - L'Aquila - IT

2010 - 2014

Lecturer

University of Genoa - Genoa - IT

2014 - ONGOING

Associate professor

University of Genoa - Genoa - IT

Postgraduate research and teaching activity

Supervision of PhD students, residents and post-doctoral fellows

PhD students supervision

- Irene Nepita. PhD in Civil, Chemical and Environmental Engineering, University of Genoa. XXXIII cycle. In collaboration with Alessandro Stocchino (University of Genoa).

- Filippo Recrosi, in collaboration with Amabile Tatone (Università dell'Aquila). Gran Sasso Science Institute (GSSI), L'Aquila.

- Mariia Dvoriashyna. PhD in Civil, Chemical and Environmental Engineering,

University of Genoa. XXXI cycle.

- Peyman Davvalo Khongar. PhD in Civil, Chemical and Environmental Engineering, University of Genoa. XXX cycle. In collaboration with Jan O. Pralits (University of Genoa).

- Krystyna Isakova. PhD in Civil, Chemical and Environmental Engineering, University of Genoa. XXVIII cycle. In collaboration with Jan O. Pralits (University of Genoa).

- Valeria Baronti. PhD in Civil, Chemical and Environmental Engineering, University of Genoa. XXVIII cycle.

- Kritsada Leungchavapongse, in collaboration with Jennifer H. Siggers. "Mathematical modelling of the liver microcirculation". Department of Bioengineering, Imperial College London (UK). Thesis submitted in January 2013.

- Julia Meskauskas. "Mathematical modelling of the motion of the vitreous humour induced by eye rotations". University of L'Aquila. XXIV cycle.

- Vittorio Lucchese, in collaboration with Gianrenzo Remedia (University of L'Aquila). "Morfodinamica fluviale e rinaturazione dei corsi d'acqua. Formalizzazione della fenomenologia con metodi numerici ai volumi finiti". Università dell'Aquila. XXII cycle.

Research interests

I carry out research, both theoretical/numerical and experimental, in the fields of hydraulics, river morphodynamics, basic and biological fluid mechanics, in collaboration with Italian and foreign groups. I am author of numerous publications on prestigious international journals. I acted as reviewer for scientific papers for more than 40 different scientific journals. In the following I report a list of the main active research projects.

- Ocular fluid dynamics

* Mechanics of retinal detachment. During the last years we proposed various mathematical models aimed at understanding the mechanics of generation of vitreoretinal tractions and retinal detachment. Main collaborations: Department of Bioengineering, Imperial College London (UK); Information Engineering, Computer Science and Mathematics, University of L'Aquila.

* Pumping mechanisms in the retinal pigment epithelium. We developed mathematical models of the retinal pigment epithelium that take into account both ion and water transport. Main collaborations: Mathematical Institute, University of Oxford (UK).

* Ocular fluid dynamics in the presence of intraocular lenses. We developed models of the fluid mechanics in the anterior segment of the eye in the presence of intraocular lenses. Main collaborations: private companies in the field; Stanford University (USA).

* Fluid dynamics of vitreous cutters. We tested various vitrectomy systems and, in particular, characterised fluid flow induced by the cutter blade motion. Main collaborations: private companies in the field.

- Hepatic microcirculation

* Blood circulation and mechanics of the hepatic tissue in the presence of fibrosis. We developed a mathematical model of liver perfusion and

mechanics in the presence of fibrotic tissue, based on a poroelastic approach. Main collaborations: Department of Bioengineering, Imperial College London (UK); Information Engineering, Computer Science and Mathematics, University of L'Aquila.

Editorial activity

Member of the Editorial Board of the Journal for Modeling in Ophthalmology (Kugler Publications)(<http://www.modeling-ophthalmology.com/index.php/JMO/about/editorialTeam>).

Assignments abroad

- September 2006 - February 2008. Sabbatic leave spend at the "Department of Bioengineering, Imperial College London" (UK). The leave was partly covered by the following fellowship: International Incoming Short Visits Scheme. Fellowship funded by the Royal Society. Title of the project: "Fluid motion and mixing in the vitreous cavity induced by eye rotations". In collaboration with Dr. J. H. Siggers. Dal 12/2007 02/2008 dal 09-09-2006 al 28-02-2008

- In the framework of the MS Erasmus Mundus "MathMods" course in Mathematical Engineering, coordinated by the University of L'Aquila and involving 4 other European partners (Autonomous University of Barcelona, Spain; Gdansk University of Technology, Poland; University of Hamburg, Germany; University of Nice - Sophia Antipolis, France), I taught the following courses:

- a.a. 2010/2011-2012/2013. "Biofluid dynamics"

- a.a. 2008/2009-2009/2010. "Fluid dynamics"

- a.a. 2013/2014-2015/2016. Part of the course "Applied Partial Differential Equations and Fluid Dynamics"