

Alberto Bellin

Curriculum Vitae

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Personal Information

Birth **03 August 1962**, *Borgo Valsugana (TN)*, Italy.
Citizenship **Italian**.

EDUCATION

1989–1992 **PhD**, *Hydrodynamics*, University of Padua, Italy.
1982–1987 **M.Sc.**, *Civil Engineering*, University of Padua, Italy.
Summa Cum Laude

RESEARCH INTERESTS

My research embraces flow and transport processes in heterogeneous environments, along the following main lines: 1) transport processes in heterogeneous formations at both local and catchment scale, including the impact of local dispersion on mixing and geochemical reactions. This research resulted in innovative tools for risk assessment studies and the development of methodologies for addressing the impact of the data support volume in groundwater modeling; 2) inversion of tomographic data for characterizing hydraulic property variations in heterogeneous aquifers. This research provided novel approaches for inference of hydraulic properties variations in heterogeneous aquifers by using hydraulic (i.e. hydraulic tomography) and concentration data; 3) Modeling of surface/subsurface exchange processes and their implication on the nitrogen cycle. This research unveiled the importance of advection in hyporheic exchange, which before was modeled as a purely diffusive exchange. The coupling of this model with a geochemical model of the nitrogen cycle resulted in an upscaling technique able to predict N_2O emissions from rivers; 4) water resources management in the Alpine catchments. This research analyzed the combined impact of water uses and climate change on mesoscale hydrological fluxes. The main contribution in this field is a tool for modeling hydrological processes in catchments altered by climate change and water uses, and disentangle their effect.

PUBLICATIONS

Alberto Bellin is author and coauthor of 154 publications, 131 on them published on international peer review Journals. Additional details are available at the following links:

[ISI Web of Knowledge profile](#)

[ORCID profile](#)

[Research Gate](#)

[Google Scholar](#)

CURRENT POSITION

Professor of Hydraulic and Marine Constructions and Hydrology, *Department of Civil, Environmental and Mechanical Engineering, and C3A - Center Agriculture Food Environment*, University of Trento (Italy).

ACADEMIC EMPLOYMENT

- Nov. 1998 - **Associate professor of Hydraulic and Marine Constructions and Hydrology**, *Department of Civil and Environmental Engineering*, University of Trento (Italy).
Oct. 2000
- Nov. 1990 - **Assistant professor of Hydraulic and Marine Constructions and Hydrology**, *Department of Civil and Environmental Engineering*, University of Trento (Italy).
Oct. 1998

PROFESSIONAL EXPERIENCE AND SERVICE (SINCE 2001)

- 2006 - present Associated Editor of Water Resources Research
- 2013-present Member of the doctoral school committee; program in Civil, Environmental and Mechanical Engineering, University of Trento
- May 2016-2018 Member of the Committee for the institution of the research Center on Agriculture Food and Environment of the University of Trento in collaboration with the Fondazione Edmund Mach
- Sept. 2015 - Member of the Committee for recruitment and career development, University of Trento
2019 (Italy)
- Nov. 2016 - Member of the national committee for the National habilitation to the role of University
2018 professor (sector 08/A1)
- Nov. 2014 - Member of the Board of Discipline of the University of Trento
Oct. 2016
- Nov. 2012 - Member of the Steering Committee of the Department of Civil, Environmental and Mechanical
Oct. 2015 Engineering
- 2010-2018 Member of the Trentino climate observatory as representative of the University of Trento
- Nov. 2007 - Member of the Teaching committee of the School of Engineering, University of Trento
Feb. 2013
- Nov. 2007 - Head of the PhD School in Environmental Engineering, University of Trento (Italy)
Feb. 2013
- 2004 - 2006 Vice president of the International Commission on Ground Water (ICGW), International Association of Hydrological Sciences (IAHS)
- Nov. 2001 - Head of the Department of Civil and Environmental Engineering University of Trento (Italy)
Oct. 2007

SABBATICAL AND SHORT VISITS

- Aug. 2016 **Visiting Research fellow** at the Dept. of Civil and Environmental Engineering, University of Southern California, Los Angeles USA
- Jun. 1992 - **Visiting Research fellow** at the Dept. of Civil Engineering, University of California at
Jul. 1993 Berkeley (USA) (sabbatical year)
- Jun. 1994 - **Visiting Research fellow** at the Dept. of Civil Engineering, University of California at
Jul 1994 Berkeley (USA)

FUNDING (since 2004)

European Union

- 2015 - 2018 **Member of the steering committee of the project:** Energy oriented Centre of Excellence for computer applications ([EoCoE](#)) funded by the European Commission within the Horizon 2020 program (project reference 676629)
- 2014 - 2019 **WP leader and member of the steering committee of the project:** Managing The Effects Of Multiple Stressors On Aquatic Ecosystems Under Water Scarcity ([GLOBAQUA](#)) funded by the European Commission within the VII framework program (Grant Agreement No. 603629-ENV-2013-6.2.1)
- 2010 - 2013 **WP leader and member of the steering committee of the project:** Climate Induced Changes on the Hydrology of Mediterranean Basins ([CLIMB](#)) funded by the European Commission within the VII framework program.
- 2010 - 2018 Partner in the Erasmus program project Science for MAnagement of Rivers and their Tidal systems ([SMART](#)) funded by the Erasmus Mundus Joint Doctoral Programme
- 2004 - 2009 **PI and member of the steering committee of the sub-project:** COMPUTE in the integrated project: Integrated modeling of the river-sediment-soil-groundwater system; advanced tools for the management of catchment areas and river basins in the context of global change ([AQUATERRA](#)) funded by the European Commission within the VI framework program. Member of the steering committee

Italian Ministry of Research and University

- 2013 - 2016 **PI of the interuniversity project:** innovative methods for water resources management under hydro-climatic uncertainty scenarios funded by the Italian University and Research Ministry (MURST) within the PRIN2010-2011 program (prot. 2010JHF437)
- 2008 - 2009 **PI of the interuniversity project:** Transport phenomena at the catchment scale, funded by the Italian University and Research Ministry (MURST) within the PRIN program
- 2004 - 2006 **PI of the interuniversity project:** Nutrient and contaminant transport at the catchment scale: models for the management and the protection of water resources, funded by the Italian University and Research Ministry (MURST) within the PRIN program

Local Agencies

- Dec. 2011 - Nov. 2013 Computer simulation of blood flow in the intra/extra cranial venous system in humans with multiple sclerosis and the CCSVI condition (Founded by: Fondazione Caritro)
- 2006-2010 **PI of the project:** Hydrological cycle of the Cadeses regions (Hydrocare), funded by the Autonomous Province of Trento in the framework of the EU program Interreg III B Cadeses

INTRAMURAL WATER ENGINEERING RESEARCH since 2005

PI in the following applied research projects (selection)

- 2005 Field site for monitoring soil moisture in an apple orchard, funded by the Autonomous Province of Trento;
- 2005-2006 Real time model for flood prediction in the province of Trento, funded by the Autonomous Province of Trento;
- 2005 Hydrological and hydraulic study of the S. Massenza hydropower system, funded by the Autonomous Province of Trento;
- 2006-2007 Study of the impact of a underground mineral exploitation on the groundwater system, funded by Tassullo;
- 2007-2009 Water budget study of catchments within the Province of Trento to support the water resource plan of water authority in the province of Trento, phase I: analysis of the time series, funded by the Autonomous Province of Trento;

- 2008-2009 Development of a groundwater model of the regional aquifer of the ceramic district of Modena and Reggio Emilia, funded by the Regional Environmental Protection Agency, Emilia Romagna region;
- 2009-2011 Water budget study of catchments within the Province of Trento to support the water resource plan of water authority in the province of Trento, phase II: reconstruction of natural flows, funded by the Autonomous Province of Trento;
- 2011-2013 Study on the water budget and the nutrients load of the Ledro lake, funded by the Autonomous Province of Trento;
- 2013-2014 Homogenization of snow depth data time series of the Province of Trento, funded by the Autonomous Province of Trento;
- 2020 - present A large scale model of groundwater resources in the Trentino region, funded by the Agenzia Provinciale per Le Risorse Idriche e l'Energia (APRIE)

REFERRAL ACTIVITIES

Journals

Advances in Water Resources; Biomechanics and Modeling in Mechanobiology; Frontiers; Geophysical Research Letters; Geoscientific Model Development; Hydrology and Earth System Sciences Journal of Contaminant Hydrology; Journal of Glaciology; Journal of Hydrology; Mathematical Geology; Microporous and Mesoporous Materials; Plos One; Science of the Total Environment; Stochastic Environmental Research and Risk Assessment; Stochastic Hydrology and Hydraulics; Transport in Porous Media; Water Resources Research; Water; Physical Review Fluids

Funding Agencies

Research projects National Science Fundation (USA) sectors: Earth Sciences and Hydrological Sciences; Commission of the European Community (V framework, Energy Environment and Sustainable Development); PRIN, Progetti di Ricerca di Interesse Nazionale, Italy; DFG, German Research Foundation, Germany; SNF, Swiss National Science Foundation, Switzerland; Austrian Academy of Sciences, research program Earth System Sciences (ESS), Austria; Evaluation Committee of the Helmholtz Centre for Environmental Research (UFZ), Germany

TEACHING EXPERIENCE (SELECTION)

- 1994-1995 IDROLOGIA TECNICA (Technical hydrology, program in Environmental and Land Engineering; 5 years program)
- 1995-1996 IDROLOGIA TECNICA (Technical hydrology, program in Environmental and Resources Engineering; 3 years program)
- 1996-2004 IDROLOGIA (Hydrology, program in Environmental and Land Engineering; 5 years program)
- 1998-2005 GESTIONE DELLE RISORSE IDRICHE (Water Resources Management, program in Environmental and Land Engineering; 5 years program)
- 2005-2009 IDROLOGIA, Laurea Specialistica in Ingegneria dell'Ambiente e del Territorio (Hydrology, Master program in Environmental and Land Engineering)
- 2004-2009 GESTIONE DELLE RISORSE IDRICHE (Water Resources Management, program in Environmental and Land Engineering; 3 years program)
- 2005-2010 PROTEZIONE DELLE RISORSE IDRICHE (Water Resources Protection, Master program in Environmental and Land Engineering)

- 2005-2007 IMPIANTI IDROELETTRICI (Hydropower Plants, Master program in Environmental and Land Engineering)
 - 2005-2017 GEOSTATISTICS (PhD program in Environmental Engineering and from 2012 PhD program in Civil, Environmental and Mechanical Engineering)
 - 20012 ELEMENTI DI IDRAULICA E COSTRUZIONI IDRAULICHE, (Introduction to Hydraulics and Hydraulic Constructions, programs in Civil and Environmental and Land Engineering, 3 years program (Bachelor))
 - 2012-2013 ENVIRONMENTAL FLUID MECHANICS /HYDROPOWER PLANTS , Master program in Energy Engineering
 - 2009-2018 MODELLAZIONE IDROLOGICA (Hydrological Modeling, Master program in Environmental and Land Engineering)
 - 2018 IMPIANTI IDROELETTRICI, (Hydropower systems, Master program in Environmental and Land Engineering)
 - 2009-active GESTIONE DELLE RISORSE IDRICHE (Water Resources Management, Master program in Environmental and Land Engineering)
 - 2013-active PHYSIOLOGICAL FLOW AND TRANSPORT IN POROUS TISSUES (Master program in Mathematics)
 - 2019-active COSTRUZIONI IDRAULICHE, Hydraulic Constructions, Master program in Civil Engineering
- Trento, April 26, 2021