

Curriculum Vitae - Paolo Zunino

POSITION

July 1st 2015 - present *Associate Professor* (with tenure)
MOX - Department of Mathematics, Politecnico di Milano, Italy

January 2012 - June 2015, *Assistant Professor*
Department of Mechanical Engineering and Materials Science, University of Pittsburgh

October 2014 - present, *Adjunct Faculty*
Department of Mathematics, University of Pittsburgh

April 2005 - December 2011, *Ricercatore*
MOX - Department of Mathematics, Politecnico di Milano, Italy

November 2002 - March 2005, *Postdoctoral Fellow*
Chair of Modelling and Scientific Computing, Institute of Analysis and Scientific Computing, Ecole Polytechnique Fédérale de Lausanne, Switzerland.
Post. Doc. Advisor: Prof. Alfio Quarteroni.

December 2002 and February 2003, *Visiting Researcher*
Biofluid Mechanics Research Group, Prof. Karl Perktold, Graz University of Technology, Graz, Austria.

June 1999 - October 2002, *Research Assistant*
Chair of Modelling and Scientific Computing, Institute of Analysis and Scientific Computing, Ecole Polytechnique Fédérale de Lausanne, Switzerland

ADDRESS

Department of Mechanical Engineering and Materials Science, University of Pittsburgh
604 Benedum Hall, 3700 O'Hara Street, Pittsburgh, PA 15261
Office: (412) 624 9774, Email: paz13@pitt.edu

EDUCATION

Ph.D., Applied Mathematics, November 2002,
Chair of Modelling and Scientific Computing (CMCS)
Institute of Analysis and Scientific Computing (IACS)
Ecole Polytechnique Fédérale de Lausanne (EPFL)
Advisor: Prof. Alfio Quarteroni.
Dissertation: *Mathematical and numerical modelling
of mass transfer in the vascular system.*

Master in Aerospace Engineering (100/100 Summa Cum Laude), April 1999.
Politecnico di Milano, Milan, Italy.

HONORS & AWARDS

Awarded with the *SIAM Outstanding Paper Prize* by the Society for Industrial and Applied Mathematics, on July 2004 in Portland, Oregon, for the paper *A Domain Decomposition Method for Advection-Diffusion Processes with Application to Blood Solutes*, by Alfio Quarteroni, Alessandro Veneziani and Paolo Zunino, appeared in the SIAM Journal on Scientific Computing in 2002. The prizes, first awarded in 1999, are given for outstanding papers published in SIAM journals during the three years prior to the year of the award.

RESEARCH GRANTS

- *National Institute of Health* (NIH, USA), Heart Lung and Blood Institute: (NHLBI), R21 Grant. Title: *Host Remodeling of Grafts to Functional Arteries-Translation*

to Mature Animals Role: Co-Investigator with Dr. Anne M. Robertson (PI, contact) and Dr. Yadong Wang (PI) Duration: July 2014 - June 2016

- *Department of Energy* (DoE, USA), Advanced Scientific Computing Research Program. Title: *Multiscale Modeling and Simulation of Multiphase Flow in Porous Media Coupled with Geomechanics* Role: Co-Investigator with Dr. I. Yotov (PI) Duration: August 2014-July 2017.
- *National Science Foundation* (NSF, USA), Directorate of Mathematical Sciences. Title: *Analytical and Numerical Study of Two Problems Arising in Solid-Liquid Interaction*. Role: Co-PI with Dr. G.P.Galdi (PI) Duration: August 2013-July 2015.
- *University of Pittsburgh, Hewlett International Grant*. Title: *Extended finite element methods for free interface problems*. Role: Principal Investigator (PI). Duration: June 2012-May 2013.
- *Politecnico di Milano, 5 per mille Junior*. Title: *Computational models for heterogeneous media. Application to microscale analysis of tissue engineered constructs*. Role: Principal Investigator (PI). Duration: January 2011-December 2012.

PROFESSIONAL EXPERIENCE

- Co-Investigator of the project *Multiscale Modeling and Simulation of Multiphase Flow in Porous Media Coupled with Geomechanics* supported by the *Department of Energy* (DoE, USA), Advanced Scientific Computing Research Program, 01/08/2014-31/07/2017.
- Co-Investigator of the project *Host Remodeling of Grafts to Functional Arteries- Translation to Mature Animals* supported by the *National Institute of Health* (NIH, USA), Heart Lung and Blood Institute: (NHLBI), 01/07/2014 - 30/06/2016
- Co-Principal Investigator of the project: *Analytical and Numerical Study of Two Problems Arising in Solid-Liquid Interaction*, supported by the *National Science Foundation* (US), Directorate of Mathematical Sciences, 01/08/2013-31/07/2016.
- Principal Investigator of the project: *Computational models for heterogeneous media. Application to microscale analysis of tissue engineered constructs*, supported by *Politecnico di Milano*, 01/01/2011-31/12/2012.
- Investigator in the ERC Advanced Grant *MATHCARD - Mathematical Modeling and Simulation of the Cardiovascular System*, Project ERC 2008 AdG 227058, directed by A. Quarteroni, *Politecnico di Milano*, 1/1/2009-31/12/2013.
- Investigator in the project: *Nanobiotechnology - Models and methods for biodegradable materials*, supported by the *Italian Institute of Technology*, first term 14/06/2006-14/06/2008, second term 15/06/2008-14/06/2011.
- Investigator in the project: *Mathematical models of microstructured materials for drug eluting medical devices*, supported by *Fondazione Cariplo*, 1/3/2005-28/2/2007.
- Investigator in the project: *ChronoDIAL Project: Modeling and Optimization of Peritoneal Dialysis*. Grant 6169.1 of *Swiss National Committee for Technology and Innovation* (CTI), in collaboration with *Debiotech s.a.* (see *Industrial Collaborations*), 01/01/2003-31/12/2004.
- Investigator in the EU project: *Research Training Network on Mathematical Modeling for Haemodynamics (Haemodel)*, 01/10/2002-30/9/2006.
- Investigator in the project: *Mathematical modeling and numerical simulation of fluid flow and mass transport processes in heterogeneous media*. Grant 21-59330.99 of the *Swiss National Science Foundation* (FNS), 01/06/2000-31/05/2002.

- Investigator in the project: *ChronoDIAL Project*. Grant 4539.1 of the Swiss National Committee for Technology and Innovation (CTI), 01/06/1999-31/05/2000.

WORKSHOP / CONFERENCE ORGANIZATION

- Member of the Scientific Committee of the International Conference Series *X-DMS Extended Discretization Methods*, 1st Edition, Ferrara, Italy, 2015 (<http://x-dms2015.sciencesconf.org>)
- Member of the Organizing Committee of the American Physical Society, Division of Fluid Dynamics Annual Meeting, Pittsburgh, November 24-26, 2013 (<http://www.apsdfd2013.pitt.edu/home>)
- Member of the Organizing and Committee of the Workshop: *Drug eluting stents, clinical and technological issues*, 9 May 2007, (<http://mox.polimi.it/it/iniziativa/convegna/strifa07/>)
- Member of the Organizing and Committee of the *3rd International symposium on modeling of physiological flows*, 25-27 September 2006, (<http://www2.mate.polimi.it/convegna/themes/Haemodel/committee.php>)

SERVICE

- Member of the Editorial Board of the SEMA SIMAI Springer Series. Editors-in-chief: L. Formaggia, P. Pedregal. Series Editors: W. Bangerth, A. Delshams, C. Pars, L. Pareschi, A. Tosin, E. Vazquez, J.P. Zubelli, P. Zunino.
- Organizer of the graduate seminar cycle entitled *Three-Rivers Seminar on Fluid Mechanics* (3RSFM), Department of Mechanical Engineering and Materials Science, University of Pittsburgh. The 3RSFM aims at promoting activities and collaborations at the interface of mathematical modeling, computational science and applications. Spring Term 2013, Fall Term 2013. www.facebook.com/3RSFM
- Member of the ME Ph.D. Preliminary Qualifying Examination Committee, Section Mathematics, Department of Mechanical Engineering and Materials Science, University of Pittsburgh, 2012-2015.
- Member of Ph.D. Final/Overview Defense Committees of the Department of Mechanical Engineering and Materials Science and Department of Mathematics, University of Pittsburgh, 2012-2015.
- Member of the Scientific Committee of the *Center for the Nanobiotechnology and Nanomedicine*, Politecnico di Milano, term 2010-2012.
- Member of the Scientific Committee for the Ph.D. Program *Mathematical Models and Methods for Engineering*, Department of Mathematics, Politecnico di Milano, 2010-2012.
- Member of the Graduate and Master Thesis Defense Committee for Aerospace, Biomedical and Mathematical Engineers, Politecnico di Milano, 2005-2011.
- Member of the Search Committee for research fellows affiliated to the projects: *Nanobiotechnology models and methods for local drug delivery from nano/micro-structured materials*, *Nanobiotechnology - Models and methods for biodegradable materials* and *Computational modeling for bio-nano-technologies*.

PROFESSIONAL SOCIETIES

Member of the (American) Society for Industrial and Applied Mathematics (SIAM), of the American Physical Society (APS), of the Italian Society for Industrial and Applied Mathematics (SIMAI), of the (Italian) National Group for Scientific Computing (GNCS).

- REVIEWER** Reviewer for the following international scientific journals: AMS Mathematical Reviews; American Journal of Neuroradiology; ASME Journal of Biomechanical Engineering; Archives of Rational Mechanics and Analysis; Biomechanics and Modeling in Mechanobiology; Biomedical Microdevices; Computational Geosciences; Computers and Fluids; Computer Methods in Applied Mechanics and Engineering; ESAIM - Mathematical Modelling and Numerical Analysis; IMA Journal of Numerical Analysis; International Journal of Heat and Mass Transfer; International Journal for Numerical Methods in Engineering; International Journal for Numerical Methods in Biomedical Engineering; Journal of the Royal Society Interface; Journal of Scientific Computing; Journal of Computational and Applied Mathematics; Mathematical Models and Methods in Applied Sciences; Mathematics of Computation; Numerische Mathematik; Philosophical Transactions of The Royal Society A; (SIAM) Multiscale Modeling and Simulation; SIAM Journal on Applied Mathematics; SIAM Journal on Numerical Analysis; SIAM Journal on Scientific Computing;
- INDUSTRIAL COLLABORATIONS** June 1999 - 2005, Scientific Consultant of Debiotech s.a. (www.debiotech.com). Tasks: mathematical and numerical modelling of peritoneal dialysis and insulin pharmacokinetics.
- PATENTS** Intellectual property (Inventor), with D. Mastalli and A. Quarteroni, of the patent *Peritoneal dialysis system*, WO Patent App. PCT/IB2007/050,406 <http://www.google.com/patents/WO2007091217A1?cl=en>
- LANGUAGES** Fluent in English and French. First language: Italian.
- PROGRAMMING** Good experience in Matlab, Fortran and C/C++ programming.
Good experience with scientific computing and finite element libraries.
- TEACHING** University of Pittsburgh, Teacher/Instructor:
- *ME2055 Computational Analysis of Transport Phenomena*, graduate level, 40 hours per term, spring term 2015.
 - *MEMS0071 Introduction to Fluid Mechanics*, undergraduate level, 40 hours per term, 120 students, fall term 2013, spring term 2014, fall term 2014, spring term 2015.
 - *MEMS1072 Applied Fluid Mechanics*, undergraduate level, 40 hours per term, 80 students, fall term 2012, spring term 2013.
- Politecnico di Milano, Teacher/Instructor:
- *Numerical methods for Bioengineering*, 45 hours, 100 students, summer semester '07/08, '08/09, winter semester '09/'10, '10/'11, '11/'12.
 - *Numerical approximation of partial differential equations for Mathematical Engineers* 35 hours, 50 students, winter semester '07/08, '08/09, summer semester '09/'10, '10/'11, '11/'12.
 - *Mathematical and numerical methods for Aerospace Engineers*, 35 hours, 100 students, winter semester '06/07, '07/08, '08/09.
- Politecnico di Milano, Teaching Assistant:
- *Computational Fluid Dynamics for Mathematical Engineers*, 25 hours, 30 students, summer semester '05/06, Instructor: Prof. A. Veneziani.

- *Numerical Analysis for Mathematical Engineers*, 60 hours, 100 students, summer semester '04/05, '05/06, '06/07, Instructor: Prof. A. Quarteroni.

Ecole Polytechnique Fédérale de Lausanne (EPFL), Teaching Assistant:

- *Numerical modelling of the vascular system*, winter semester '02/03, Instructor: Prof. A. Quarteroni.
- *Numerical Analysis*, summer semester '01/02, '00/01, '99/00, Instructors: Prof. L. Formaggia and Prof. A. Quarteroni.
- *Analysis I-III*, EPFL, winter semester '01/02, '00/01, Instructor: Prof. Y. Biollay

TUTORING AND SUPERVISION

Postdoctoral Advisees

Dr. Arturo Valentn (co-advisor with Prof. A.M Robertson), July 2012 - May 2014, University of Pittsburgh, Ph.D. in 2009 with Dr. J. Humphrey at Texas A&M University.

Awards (while under my advisement):

Young Investigator Award in Biomechanics at The 4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM 2013) for the paper, A Predictive Computational Model of Arterial Tissue Equivalent Evolution, A Valentn, X Duan, R Allen, P Zunino, Y Wang, AM Robertson, McGill University, July 23-26, 2013 Montral, Canada, (Extended abstract) Paper ID 718 (2 pages).

AHA 2013 Postdoctoral Fellowship 14POST18890043 (3 mentors: A.M. Robertson, Y. Wang, P. Zunino) Project Title: A predictive computational tool for creating tissue engineered arteries

Dr. Joao S. Soares, February 2009 - January 2010, Politecnico di Milano, Italy, Ph.D. in 2008 with K.R. Rajagopal and J. E. Moore, Jr. at Texas A&M University, currently Postdoctoral researcher with Dr. Michael S. Sacks at The University of Texas at Austin, Institute for Computational Engineering and Sciences, Center for Cardiovascular Simulation.

Ph.D. scientific tutor/supervisor:

Mahdi Nabil, August 2013 - present. Doctoral Program in Mechanical Engineering, University of Pittsburgh. (tentative title) *Analysis of coupled fluid and solid mechanics to model microcirculation and tissue microenvironment*, Role: Ph.D. Advisor.

Rana Zakerzadeh, August 2012 - present. Doctoral Program in Computational Modeling and Simulation, University of Pittsburgh. (tentative title) *Computational modeling of fluid-structure interaction with poroelastic materials*, Role: Ph.D. Advisor.

L. Cattaneo, January 2011- March 2014. Doctoral Program on Mathematical Models and Methods for Engineering, Politecnico di Milano. Ph.D. Thesis: *FEM for PDEs with unfitted interfaces: application to flow through heterogeneous media and microcirculation*. Role: Ph.D. Advisor.

S. Minisini, November 2005 - March 2009. Doctoral Program on Mathematical Models and Methods for Engineering, Politecnico di Milano. Ph.D. Thesis: *Mathematical modeling of micro-structured materials for local drug release*. Role: Ph.D. Co-Advisor

with Prof. L. Formaggia (Ph.D. Advisor)

D. Mastalli, December 2002 - January 2006. Doctoral Program in Applied Mathematics, EPFL, Lausanne. Ph.D. Thesis: *Mathematical modeling and optimization of peritoneal dialysis*. Role: Co-Advisor with Prof. A. Quarteroni (Ph.D. Advisor).

F. Calabrò, January 2002 - April 2005. Politecnico di Milano and Università di Napoli "Federico II" Ph.D. Thesis: *Analysis of time dependent nonlinear problems: existence of solutions and numerical approximation*. Role: Co-Advisor with Prof. A. Quarteroni (Ph.D. Advisor).

Master thesis supervisor:

Ryan Soncini, April 2012 - December 2013. Graduate Program in Mechanical Engineering, University of Pittsburgh. M.S. Thesis: *Parameter estimation via Bayesian inversion: theory, methods and applications*. Role: M.S. Thesis Advisor.

M. Caputo, C. Cianciolo, September 2011 - December 2012. MOX/LaBS, Politecnico di Milano. M.S. Thesis: *Computational analysis of mass transport through stented arteries*, Role: M.S. Thesis Advisor with Prof. F. Migliavacca and Dr. C. Chiastra and Dr. E. Cutri (Co-Advisors)

L. Cattaneo, C. Colciago, September 2009 - July 2010. MOX, Politecnico di Milano. M.S. Thesis: *Computational modeling of artificial tissue growth*, Role: M.S. Thesis Advisor.

A. Porpora, July 2008 - December 2009. MOX, Politecnico di Milano. M.S. Thesis: *Numerical approximation of defective boundary conditions for hemodynamic flows*, Role: M.S. Thesis Advisor.

A. Conca, January 2008 - July 2009. MOX, Politecnico di Milano, in collaboration with Ducati Motor Holding. M.S. Thesis: *Numerical simulation of the thermal field into internal combustion engines*. Role: M.S. Thesis Advisor.

L. Mella e L. Nebuloni, October 2007 - December 2008. MOX/LaBS, Politecnico di Milano. M.S. Thesis: *Computational study of the interaction between blood flow and drug release from a cardiovascular stent*. **Awarded with the Prize for the Best Master Thesis by the (Italian) Society of Bioengineering, 2009**. Role: M.S. Thesis Advisor with Prof. F. Migliavacca, Dr. C. D'Angelo (Co-Advisor)

B.S. thesis supervisor:

E. Schenone, September 2008 - February 2009. MOX, Politecnico di Milano. B.S. Thesis: *Numerical approximation of nonlinear conservation laws by means of Runge-Kutta Discontinuous Galerkin schemes*. Role: B.S. Thesis Advisor.

L. Cattaneo and M. Colgiago, March 2007 - September 2007. MOX, Politecnico di Milano. B.S. Thesis: *Image based estimation of the diffusivity of chemicals in porous materials*. Role: B.S. Thesis Advisor.

M. Martello, March 2007 - September 2007. MOX, Politecnico di Milano. B.S. Thesis: *Projective integration methods for drug release models from stents*. Role: B.S. Thesis Advisor.

A. Bianchessi and M. Dalla Rosa, March 2006 - September 2006. MOX, Politecnico di Milano. B.S. Thesis: *Mathematical modeling of drug release from drug-eluting stents*. Role: Co-Advisor with Prof. A. Veneziani (Advisor)

L. Walter, September 2004 - January 2005. EPFL, Lausanne. B.S. Thesis: *Adaptive approximation of chaotic differential equations*. Role: B.S. Thesis Co-Advisor with Dr. E. Burman (Advisor).

Undergraduate research and internship student supervisor:

G. D'Urso, L. Iannetti, D. Notaro, internship students at University of Pittsburgh from Politecnico di Milano, January 2015 - April 2015.

T. Rosalina, internship student at University of Pittsburgh from Eindhoven University of Technology, April 2014 - July 2014.

M. Plutt, undergraduate research student, spring term 2014 and fall term 2014, University of Pittsburgh.

J. Murphy, undergraduate research student, summer term 2013 and fall term 2013, University of Pittsburgh.

L. Cattaneo, G. Iori, internship students at University of Pittsburgh from Politecnico di Milano, February 2013 - April 2013.

M. Caputo, C. Cianciolo, internship students at University of Pittsburgh from Politecnico di Milano, October 2012 - November 2012.

SEMINARS AND COMMUNICA- TIONS

Plenary/Keynote Lectures at Conferences and Summer Schools

1. July 2010, University of Durham, UK, (5 hour lecture cycle) *14th LMS-EP SRC Summer School in Numerical Analysis on Computational Biology*, Title: Finite element solution of problems from mathematical biology (i.p.)
2. 29-31 March, 2010, Yokohama, Japan, *2nd International Workshops on Advances in Computational Mechanics, Workshop: Computational biomechanics* Title: Computational modeling of controlled drug release in the cardiovascular system. (k.l.)
3. 6-9 December 2005, INRIA, Paris, France (3h lecture). *CEA-EDF-INRIA School: Numerical simulation of blood flows* Title: Mathematical modelling and simulation of biochemical transport. (i.p.)
4. 17-19 September 2003, University of Edinburgh, Edinburgh, UK (plenary lecture). *ICMS Conference on Computational Modeling in Medicine*. Title: Mathematical modeling of mass transfer in the vascular system and related clinical applications. (i.p.)

¹Seminar classification: i.p. = invited plenary lecture, k.l. = invited keynote lecture, i.s. = invited seminar, i.m. = invited seminar in mini-symposium, c.s. = contributed seminar.

Invited Seminars at Workshops and Conference Minisymposia

5. January 2016, University College London (UCL), London, UK *Workshop on Geometrically Unfitted Finite Element Methods* Title: Numerical approximation of coupled PDEs on manifold folds with high dimensionality gap (i.s.)
6. September 2015, Darmstadt, Germany *International Workshop on Multiscale Models in Mechano and Tumor Biology Modeling, Homogenization, and Applications* Title: An embedded multiscale approach for blood perfusion, drug and heat transport in tumors (i.s.)
7. September 2015, Ferrara, Italy *X-DMS 2015 - eXtended Discretization MethodS*, Minisymposium: Enriched methods for flow and mechanics in heterogeneous porous media. Title: Numerical approximation of coupled PDEs with high dimensionality gap (i.m.)
8. August 2015, Milano, Italy *37TH ANNUAL INTERNATIONAL CONFERENCE OF THE IEEE Engineering in Medicine and Biology Society* Minisymposium: Mechanobiology Title: Theory and application of arterial tissue in-host remodeling (i.m.)
9. December 8th, 2014, University of Notre Dame, Department of Applied and Computational Mathematics and Statistics, IN, USA. Title: An embedded multiscale approach for studying blood perfusion and drug transport in tumors (i.s.)
10. November 7th, 2014, Carnegie-Mellon University, Department of Civil and Environmental Engineering, PA, USA. Title: An embedded multiscale approach for studying blood perfusion and drug transport in tumors (i.s.)
11. October 20th, 2014, New York University, Department of Mechanical Engineering, NY, USA. Title: A computational study of blood perfusion and drug transport in tumors based on an embedded multiscale approach (i.s.)
12. October 15th, 2014, Pittsburgh, PA, Workshop: *Advancing Research Through HPC* Title: Geometric embedded multiscale methods for the approximation of coupled PDEs with heterogeneous dimensionality (i.s.)
13. August 5th, 2014, The Methodist Hospital Research Institute, Department of Translational Imaging, Houston, TX. Title: A computational study of blood perfusion and drug transport in tumors (i.s.)
14. July 31, 2014, Institute of Computational Engineering and Science (ICES), UT-Austin, TX, Seminar-Subsurface Modeling Series. Title: Computational methods for the interaction of a fluid with a poroelastic material. Partitioning strategies and numerical treatment of embedded interfaces (i.s.)
15. July 6-11th 2014, Boston, USA, *World Congress of Biomechanics*. Minisymposium: Cardiovascular Fluid Mechanics II. Title: A computational model of drug delivery through microcirculation to compare different tumor treatment options (i.s.)
16. June 6th 2014, Civil & Environmental Engineering Seminar, Duke University, NC. Title: XFEM discretization and analysis of steady and time dependent contrast problems (i.s.)
17. May 22-23, 2014, Workshop on Computational Geomechanics, University of Pittsburgh, PA. Title: Computational methods for the interaction of a fluid with a poroelastic material. Partitioning strategies and numerical treatment of embedded interfaces (i.s.)
18. March 27th, 2014, Emory SIAM Student Chapter, Emory University, Atlanta, GA. Title: A computational study of blood perfusion and mass transport in tumors (i.s.)

19. January 20 - 24, 2014, Brown University, Providence, RI, Institute for Computational and Experimental Research in Mathematics (ICERM) Workshop: *From the Clinic to Partial Differential Equations and Back: Emerging challenges for Cardiovascular Mathematics* Title: Computational models for fluid exchange and bio-chemical transport between microcirculation and tissue interstitium. A study of drug delivery strategies to target tumors (i.s.)
20. December 7-10, Orlando, FL, *SIAM conference on Analysis of Partial Differential Equations* Minisymposium: Fluid-Structure Interaction: Analysis, Numerics and Applications. Title: Enforcing interface conditions for FSI problems using Nitsche's method. Derivation of explicit coupling strategies for multilayered poroelastic arteries (i.s.)
21. October 28, 2013 to November 01, 2013 *Mathematical Biosciences Institute (MBI) Workshop on Mathematics Guiding Bioartificial Heart Valve Design* Title: Computational modelling of drug eluting cardiovascular stents (i.s.)
22. October 10th, 2013, *Center for Computational and Integrative Biology*, Rutgers University - Camden, NJ, Title: Analysis of perfusion, microcirculation and drug transport in tumors. A computational study. (i.s.)
23. July 22-25, 2013, Raleigh, NC, *US National Conference on Computational Mechanics, Minisymposium: Methods for Cut and Composite Meshes: Theory, Algorithms, and Applications*, Title: Analysis of Backward Euler / XFEM Discretization of Parabolic Problems with Moving Interfaces (i.m.)
24. March 5th, 2013, Pittsburgh, PA, *Computational Math Seminar, Department of Mathematics, University of Pittsburgh*. Title: Some open problems in cardiovascular biomechanics - The intersection of applied mathematics, engineering and biology (i.s.)
25. February 24-27, 2013, San Diego, CA, *Advances in Computational Mechanics, A Conference Celebrating the 70th Birthday of T.J.R. Hughes. Minisymposium: Biomedical Fluid Mechanics and FSI* Title: Multiscale models for perfusion, microcirculation and drug release (i.m.)
26. 8-13 July 2012, Sao Paulo, Brazil, *10th World Congress on Computational Mechanics (WCCM). Minisymposium: Computational Biomechanics* Title: Computational modeling of drug eluting stents (i.m.)
27. 5-9 September 2011, Leicester, UK, *ENUMATH 2011. Minisymposium: Numerical methods for biomedical problems* Title: Computational modeling of fluid dynamics and mass transport in the cardiovascular system with application to biomedical devices (i.m.)
28. 23-25 March 2011, Munich, Germany, *16th International Conference on Finite Elements in Flow Problems (FEF 2011). Minisymposium: Fluid-structure interaction* Title: Numerical treatment of boundary conditions for hemodynamics and FSI modeling (i.m.)
29. 19-21 January 2011, Milan, Italy, *Workshop on Reduction Strategies for the Simulation of Complex Problems* Title: Numerical strategies for coupling heterogeneous and reduced models. Applications to biological flows and drug release (i.s.)
30. 11-15 January, 2009, Concepcion, Chile *Third Chilean Workshop on Numerical Analysis of PDEs (WONAPDE 2010), Minisymposium: Numerical Methods for Coupled Multiphysics Problems*. Title: A computational method for coupling blood flow and intramural plasma filtration. Application to drug release from stents. (i.m.)

31. 2-6 March 2009, Miami, USA, *SIAM Conference on Computational Science and Engineering (CSE09)* Title: The interaction of blood flow and drug release for cardiovascular drug eluting stents. Numerical treatment of net flux boundary conditions. (i.m.)
32. 30 June - 4 July 2008, Venice, Italy, *8th World Congress on Computational Mechanics, Minisymposium: Biofluids and Coupled Problems in Biomechanics*. Title: The interaction of blood flow and drug release for cardiovascular drug eluting stents. (i.m.)
33. 19-23 May 2008, IPAM-UCLA, Los Angeles, USA, *Workshop on Optimal Transport in the Human Body: Lungs and Blood*. Title: Mathematical and numerical modeling of drug release in the vascular system. (i.s.)
34. 10-14 September 2007, Graz, Austria, *ENUMATH 2007, Minisymposium on Mathematical Modeling in Medicine*. Title: Mathematical models and numerical simulation of drug release from stents. (i.m.)
35. 23-26 July 2007, San Francisco, USA. *9th US National Congress on Computational Mechanics (USNCCM9), Minisymposium on Models and Methods in Computational Vascular and Cardiovascular Mechanics*. Title: Mathematical models and numerical simulation of drug release from stents. (i.m.)
36. 12-13 February 2007, EPFL, Lausanne. *VMS-07 Mini-Workshop on Variational Multiscale Methods and Stabilized Finite Elements*. Title: Weighted Interior Penalties for Mortar and Discontinuous Galerkin Methods. (i.s.)
37. 3-7 July 2006, St. Wolfgang, Austria. *17th International Conference on Domain Decomposition Methods, Minisymposium on Multiphysics Problems*. Title: Domain decomposition methods based on weighted interior penalties. (i.m.)
38. 17 November 2003, INSA, Laboratoire CREATIS, Lyon, France. Title: Mathematical and numerical models for mass transfer aimed to the characterization of the physical properties of the arterial walls. (i.s.)
39. 25-30 August 2003, Ecole Polytechnique Fédérale de Lausanne (1h lecture). *Summer School on Modeling of the Cardiovascular System* Title: Transfer of macromolecules through the arterial wall. From physics to applications. (i.s.)
40. 21-25 July 2003 Berlin, Germany. *15th International Conference on Domain Decomposition Methods, Berlin*. Title: Iterative substructuring methods for advection-diffusion problems in heterogeneous media. (i.m.)
41. 11-14 June 2003, University of Graz, Austria. *Workshop on Cardiovascular, Respiratory and Metabolic Control Modeling*. Title: Mathematical and numerical modeling of mass transfer in the vascular system and related clinical applications. (i.s.)

Conference Contributed Seminars

42. November 24 - 26, 2013, Pittsburgh, PA *66th Annual Meeting of the APS Division of Fluid Dynamics* Title: Analysis of perfusion, microcirculation and drug transport in tumors. A computational study. (c.s.)
43. June 11-14, 2013, Chia Laguna, Italy, *5th International Symposium on Modelling of Physiological Flows*, Title: Comparison of explicit coupling strategies for fluid-structure interaction with poroelastic materials (c.s.)
44. 19-20 October 2012, Pittsburgh, PA, USA, *Finite Element Circus (Fall 2012)* Title: XFEM for parabolic problems with moving interfaces (c.s.)

45. 29th June - 1st July 2011, Cardiff, UK, *XFEM 2011. Minisymposium: Error estimation and mathematical aspects* Title: An analysis of extended finite elements for the approximation of large contrast problems (c.s.)
46. 2-4 June 2010, Cagliari, Italy, *4th. International Symposium on Mathematical and Numerical Modeling of Physiological Flows* Title: Multiscale Analysis of Degradable Polymers: from Nanoscale to Macroscale Modeling (c.s.)
47. 28 July - 1 August 2008, Limerick, Ireland, *BAIL 2008, International Conference Boundary and Interior Layers - Computational & Asymptotic Methods.* Title: Discontinuous Galerkin methods based on weighted interior penalties for second order problems with interfaces. (c.s.)
48. 30 June - 4 July 2008, Venice, Italy, *8th World Congress on Computational Mechanics, Minisymposium: Theory and Applications of Discontinuous Galerkin Methods.* Title: A posteriori error estimates for Discontinuous Galerkin methods based on weighted interior penalties. (c.s.)
49. 10-14 September 2007, Graz, Austria, *ENUMATH 2007.* Title: Discontinuous Galerkin methods based on weighted interior penalties. (c.s.)
50. 20-25 November 2005, Prague, Czech Republic. *EMBECE '05, Third European Medical and Biological Engineering Conference.* Title: Mathematical modeling of mass transfer in the vascular system. (c.s.)
51. 3-4 June 2005, Università di Pavia, Pavia, Italy. *The 3rd Finite Element Fair.* Title: Weighted interior penalty methods for non-negative partial differential equations. (c.s.)
52. 30 March - 1 April 2005, Istituto Nazionale di Alta Matematica (INDAM), Rome, Italy. *Control Systems: Theory, Numerics and Applications.* Title: Optimal Control of Peritoneal Dialysis. (c.s.)
53. 2-5 October 2002, Weierstrass Institut, Berlin, Germany. *Challenges in Scientific Computing Conference, CISC2002.* Title: Mathematical and numerical modelling of solute dynamics in blood flow and arterial walls. (c.s.)
54. 2-6 July 2002, Università degli Studi di Milano, Milan. *5th ESMTB Conference on Mathematical Modeling and Computing in Biology and Medicine.* Title: Mathematical and numerical modeling of absorption of chemicals in the arterial wall. (c.s.)
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