

Curriculum Vitae

Simone Deparis

Titles: Adjunct Professor EPFL
Dr. ès science
Dipl. Math. ETH

Swiss citizen, born October 30th 1973

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Language skills

Italian: mother tongue,
French: written and spoken fluently,
English: written and spoken fluently,
German: good knowledge in both writing and speaking.

Graduate Studies

- 04/2001–04/2004 **PhD degree** at the EPFL. Advisor: Prof. A. Quarteroni.
Thesis title: *Numerical Analysis of Axisymmetric Flows and Methods for Fluid-Structure Interaction Arising in Blood Flow Simulation.*
- 10/1998–09/1999 Mastère Spécialisé et Diplôme d'Etudes Postgrades in mathematical engineering at the Ecole Polytechnique (Paris) and EPFL.
- 10/1992–10/1997 Diploma in mathematics at the ETH Zürich.

Professional Experience

- 08/2015–present **Deputy Director** of the Section of Mathematics at the EPFL.
- 12/2018–present Adjunct Professor at the EPFL, Institute of Mathematics.
- 02/2018–12/2018 Maitre d'Enseignement et de Recherche (**MER**) at the EPFL, Institute of Mathematics.
- 02/2013–2017 Maitre d'Enseignement et de Recherche (**MER**) at the EPFL, CMCS-MATHICSE, Prof. A. Quarteroni group.
- 05/2009–07/2015 **Tutor** of the Master in Computational Science and Engineering at the EPFL, Section of Mathematics.
- 08/2006–2013 **Research Affiliate** CMCS-MATHICSE-EPFL, Prof. A. Quarteroni.
- Summer 2007 Civil Service at the Swiss Institute of Bioinformatics, Université de Lausanne, group of Prof. O. Michielin.
- 08/2004–06/2006 **Post-Doctoral Fellow and Affiliate** at the MIT, Department of Mechanical Engineering, Prof. A. T. Patera group.
- 04/2001–07/2004 Research in numerical analysis and scientific computing at the EPFL.
- 10/1999–03/2001 Research in probability and mathematical finance at the EPFL.

PhD Advisor

PhD advisor within the Doctoral School of Mathematics, EPFL.

2008–2011	Paolo Crosetto , co-advisor, advisor Prof. A. Quarteroni
2009–2012	Cristiano Malossi , IBM doctoral price, co-advisor, advisor Prof. A. Quarteroni
2011–2013	Gwenol Grandperrin , co-advisor, advisor Prof. A. Quarteroni
2011–2013	Radu Popescu , co-advisor, advisor Prof. A. Quarteroni
2011–2014	Claudia Colciago , co-advisor, advisor Prof. A. Quarteroni
2013–2016	Davide Forti , co-advisor, advisor Prof. A. Quarteroni
2017–	Luca Pegolotti

Awards

10/2018	Credit Suisse Award for Best Teaching 2018 (EPFL)
05/2018	Teaching Award of the Section of Mathematics 2018 (EPFL)

Project responsibility

- [1] **PI** on the FNS/EPFL side: FNS-DACH LeadAgency project *Domain-Decomposition-Based Fluid Structure Interaction Algorithms for Highly Nonlinear and Anisotropic Elastic Arterial Wall Models in 3D for the Prediction of Transmural Stress-Distributions*'. Applicants: A. Quarteroni and **S. Deparis** (FNS/Switzerland), A. Klawonn, O. Rheinbach, J. Schröder, and D. Balzani (DFG/Germany) **Submitted as renewal** of former project in February 2016.
- [2] **co-PI**: *Integrative HPC Framework for Coupled Cardiac Simulations* PI: Prof. A. Quarteroni. In the PASC framework *Swiss Platform for Advanced Scientific Computing* (Granted, 1 year PostDoc and 1 PhD student, 2014-2017).
- [3] FNS-DACH LeadAgency project *Domain-Decomposition-Based Fluid Structure Interaction Algorithms for Highly Nonlinear and Anisotropic Elastic Arterial Wall Models in 3D for the Prediction of Transmural Stress-Distributions*'. Applicants: A. Quarteroni and **S. Deparis** (SB-EPFL), A. Klawonn and O. Rheinbach (Univ. Duisburg-Essen, Fak. für Mathematik), J. Schröder and D. Balzani (Univ. Duisburg-Essen, Fak. für Ingenieurwissenschaften). Granted EPFL side: 1 PhD student for three years and one year of Post-doc.
- [4] **co-PI**: *HPC for Cardiovascular System Simulation* PI: Prof. A. Quarteroni. In the HP2C framework *Swiss Platform for High-Performance and High-Productivity Computing* (Granted, 2 PostDocs and 2 PhD students, 2009-2013).
- [5] **co-PI**: *Reduced Basis Preconditioners for Parametrized Differential Problems* PI: Prof. A. Quarteroni. In the COST action *EUropean MOdel Reduction NETwork* (Granted, 1 PhD student, 2015-2017; dropped as co-PI because of new position as deputy director of SMA).

- [6] Coordinator: math4AAArisk; Proposal Full Title: *A mathematical platform for Abdominal Aortic Aneurism risk assessment and surgical planning* PI: Prof. A. Quarteroni; (H2020-ERC Proof of Concept, about 2 positions for one year).
- [7] Project manager: Math2Ward; Proposal Full Title: *From math to ward: mathematical models in the doctor's hand* PI: Prof. A. Quarteroni; (FP7-ERC Proof of Concept, about 2 positions for one year).
- [8] Active promoter and task coordinator: MATHCARD; Proposal Full Title: *Mathematical Modelling and Simulation of the Cardiovascular System* PI: Prof. A. Quarteroni; (FP7-ERC Advanced Grant 227058, 3 Post-docs and 6 PhD students).
- [9] Active promoter of the *Computational and Stochastic Mathematics* focus area for the Collaborative Research and Educational Program between Instituto Superior Técnico, Lisbon, Portugal and Ecole Polytechnique Fédérale de Lausanne, Switzerland (collaboration started January 2009, 2 PhD students 2010-2013).
- [10] Local coordinator: VPH2 project; Proposal Full Title: *Virtual Pathological Heart of the Virtual Physiological Human*; Work programme topics addressed : ICT-2007.5.3: Virtual Physiological Human (FP7-STREP Grant Agreement Number 224635, 1 PostDoc 2008-2010).
- [11] **coPI**: FNS project *Reduced Basis Methods for the Optimization of Complex Systems* PI: Prof. A. Quarteroni (Granted, 2 PhD students 2009-2011).
- [12] **coPI**: FNS project *Interface operators and solution algorithms for fluid-structure interaction and applications* PI: Prof. A. Quarteroni (Grant 200020-117587/1, 1 PhD student 2008–2010).

HPC

- [1] Project manager of the **LifeV** parallel finite element library project (mainly applied in the simulation of the cardiovascular system; see <http://www.lifev.org>; founded by a consortium between INRIA, EPFL, and Politecnico di Milano).
- [2] Principal investigator: CSCS Preparatory Project 398-*Numerical Simulation of the Cardiovascular System* (granted 2009)
- [3] Principal investigator: CADMOS-BlueGene/P project *Numerical Simulation of the Cardiovascular System* co-PI: Dr. G. Fourestey (Granted 2010. 400'000 CPU hours per year)
- [4] co-Principal Investigator: *Cardiovascular simulations: sensitivity to modeling, discretization parameters, and patient specific geometries* PI: Prof. A. Quarteroni. Production project at the CSCS (Granted. 260'000 CPU hours on XT5, 2010-2011). Renewed 2011-2012 (400'000 CPU hours) and

- [5] co-Principal Investigator: *Scalable preconditioners for the Navier Stokes equations* PI: Prof. A. Quarteroni. Production project at the CSCS (Granted. 2'650'000 AU, 2012-2013). Renewed 2013-2014 (6'000'000 AUs)
- [6] co-Principal Investigator: *Complex and reduced order structural models for blood-flow simulations* PI: Prof. A. Quarteroni. Production project at the CSCS (Granted. 1'450'000 AUs, 2012-2013).
- [7] co-Principal Investigator: *Numerical simulation of vascular districts* PI: Prof. A. Quarteroni. Production project at the CSCS (Granted. 6'000'000 AUs, 2013-2014).
- [8] co-Principal Investigator: *Cardiac and vascular numerical simulations* PI: Prof. A. Quarteroni. Production project at the CSCS (Granted. 898000 node hours per year, 2015-2017).
- [9] Deputy member of the HPC-copil commission at EPFL (2006-2013).

Organisation of conferences

- ENUMATH 2013 — European Numerical Mathematics and Advanced Applications conference, Lausanne, Switzerland, August 2013, about 350 participants
- MPF2013 — Modeling of physiological flows, Chia, Italy, June 2013, about 100 participants
- EuroTUG — European Trilinos User Group meetings: Lausanne 2012, Munich 2013, Lugano 2014, Paris 2015, about 40 participants.

Teaching Experiences

- 2015 **Lecturer** for the MOOC course *MATLAB et Octave pour débutants* (in French) at EPFL.
- 2013–present **Lecturer** for the course *Algèbre Linéaire* (in French) at EPFL, for BSc in Environmental Engineering, Electrical Engineering, and Mechanical Engineering.
- 2012–2014 **Lecturer** for the course *Programming Concepts in Scientific computing* (in English) at EPFL, for the MSc in Computational Science and Engineering.
- 2012–2015 **Lecturer** for the course *Analyse Numérique* (in French) at EPFL, for the BSc in Life Sciences.
- 2013 **Lecturer** for the course *Géométrie* (in French) at EPFL, for the BSc in Mechanical Engineering.
- 2010–2014 **Lecturer** for the continuing education course *MATLAB for Beginners* (in English) at EPFL, mainly for PhD students.
- 2010–2011 **Lecturer** for the course *Numerical Analysis and Computational Mathematics* (in English) at EPFL, for the MSc in Computational Science and Engineering.
- Lecturer** for the course *Numerical Approximation of Partial Differential Equations* (in English) at EPFL, for MSc in Mathematics. 2006–2009
- Lecturer** for the course *Analyse numérique* (in French) at EPFL, for BSc in Environmental and Civil Engrng, Mechanical Engrng., and Electrical, Microtechnics, and Material Engrng.
- Advisor of Master thesis and semester works in numerical analysis at EPFL.
- 2006–2007 Assistant for the course *Approximation numérique des équations aux dérivées partielles* (in French) at EPFL.
- 1999–2004 Assistant for the courses *Algèbre Linéaire I et II, Analyse Numérique, Géométrie, Géométrie Descriptive* (in French) at EPFL.
- Co-advisor of semester works in mathematical finance and in numerical analysis at EPFL.
- 1995–1998 Assistant for the courses *Analysis I und II, Geometrie I, Mathematik I und II* (in German) at ETH Zürich.

Invited Speaker in Conferences, Workshops, and Schools

- [1] S. Deparis, lecturer at the Winter school on *Modeling, Adaptive Discretizations and Solvers for Fluid–Structure Interaction*, RICAM institute, Linz 2016.
- [2] S. Deparis, *Parallel Algorithms for Fluid-Structure Interaction and Application to Cardiovascular Flows*, Speedup workshop, Lugano 2015.
- [3] S. Deparis, *Mathematical modeling and simulations for the cardio-vascular system*

Mathematical modeling and experimental models in vascular biology, Fribourg 2015.

- [4] S. Deparis, *LifeV, parallel framework, and applications* PDESoft, Heidelberg 2014.
- [5] S. Deparis, *LifeV, parallel framework and applications to bloodflow simulations*, Software Frameworks for Challenging Computational Problems, 2013, Heraklion, January 14–18, 2013.
- [6] S. Deparis, *HPC for Blood Flow Simulation : Advancements and Challenges*, CAD-MOS Workshop on Large Scale Computing, Lausanne, Switzerland, 2012.
- [7] S. Deparis *LifeV: Applications, Design, and Parallel Framework?*, Trilinos User Group Meeting 2011, Albuquerque NM, USA.
- [8] S. Deparis *High Performance Algorithms for Multiscale Cardiovascular Flows Simulations*, International Conference on Mathematical Fluid Mechanics and Biomedical Applications, São Miguel, Portugal, 2011.
- [9] S. Deparis *Parallel Algorithms for Fluid-Structure Interaction and Application to Cardiovascular Flows*, International Workshop on Fluid-Structure Interaction, Foz do Arelho, Portugal, 2010.
- [10] S. Deparis, *Algorithms for Fluid-Structure Interaction Problems: Some Comparisons and Application to Blood Flow Simulations*, IWHPMCS, International Workshop on High Performance Methods in Computational Science, Università della Svizzera Italiana, Lugano, Switzerland, 2009.
- [11] S. Deparis, *Application of the reduced basis methods to parameter-dependent Navier-Stokes equations*, Workshop on the Reduced Basis Method, Simula research laboratory, Oslo, Norway 2008.
- [12] S. Deparis, *LifeV: application of a finite element library to hemodynamics problems*, Workshop on Modelling and Computation of Biomedical Processes, Simula research laboratory, Oslo, Norway 2007.

Talks in Conferences and Seminars

- [1] S. Deparis, *Reduced order modeling and simulation of vascular flows*, International Symposium and Winter-School on Modeling, Adaptive Discretizations and Solvers for Fluid-Structure Interaction RICAM, Linz 2016.
- [2] **S. Deparis**, L. Dede, E. Faggiano, M. Fedele, A. Tagliabue, D. Forti, and A. Quarteroni, *Numerical Modeling of the Fluid Dynamics in the Heart: from Blood Flows in Idealized Left Ventricles to Patient-specific Aortic Valve Simulations*
- [3] **S. Deparis**, C. Colciago, A. Quarteroni *Reduced Order Fluid-Structure Interaction Models for Vascular Flows* ECCOMAS Coupled Problems, Venezia 2015.

- [4] **S. Deparis**, G. Grandperrin, *Scalable preconditioners for Navier–Stokes equations and fluid-structure interaction problems* PMAA, Lugano 2014.
- [5] S. Deparis, *On the continuity of flow rates, stresses and total stresses in geometrical multiscale cardiovascular models* ENUMATH, Lausanne 2013.
- [6] S. Deparis, *Parallel preconditioners for Saddle Point problems in LifeV/Trilinos* EuroTUG 2013, Garching, 2013.
- [7] **S. Deparis**, P. Crosetto, G. Grandperrin, *From preconditioners for Navier–Stokes problems to preconditioners for fluid–structure interaction problems*. Swiss Colloquium on Numerical Analysis 2013.
- [8] S. Deparis, *Fluid-structure interaction for vascular flow simulations: Algorithms and Efficient solution strategies*, INRIA seminar, Rocquencourt, October 2012.
- [9] S. Deparis, *Patient specific blood-flow simulations in vascular districts*, European Congress on Computational Methods in Applied Sciences and Engineering, Wien 2012.
- [10] S. Deparis, *Fluid-structure interaction for vascular flow simulations: Algorithms and Efficient solution strategies*, short course, LNCC Pétropolis, Brasil 2012.
- [11] S. Deparis, *Patient specific blood-flow simulations: modeling and applications*, World Conference on Computational Mechanics, São Paulo, Brasil 2012.
- [12] S. Deparis, *Blood-flow simulations in vascular districts*, Swiss Colloquium on Numerical Analysis, University of Bern, Switzerland 2012.
- [13] **S. Deparis**, P. Crosetto, A. Quarteroni *Parallel Algorithms for Fluid-Structure Interaction and Application to Cardiovascular Flows*. 16th International Conference on Finite Element Flow Problems, Munich 2011.
- [14] S. Deparis *Fluid-Structure Interaction for Blood Flow Simulations*. SIAM Conference on Parallel Processing for Scientific Computing, Seattle, Washington 2010.
- [15] S. Deparis *Reduced basis error bound computation of parameter-dependent Navier–Stokes equations by the natural norm approach*. Swiss Colloquium on Numerical Analysis 2007.
- [16] **S. Deparis**, G. Rozza, K. Veroy-Grepl, *Reduced-basis approximation and rigorous a posteriori error estimators for incompressible Navier–Stokes*. Third M.I.T. Conference on Computational Fluid and Solid Mechanics, Cambridge 2005.
- [17] **S. Deparis**, J.-F. Gerbeau and X. Vasseur, *Dynamic GMRES-based preconditioner with application to fluid-structure interaction problems*, ICFD Conference on Numerical Methods for Fluid Dynamics, Oxford 2004.

- [18] Z. Belhachmi, C. Bernardi, **S. Deparis**, *Error estimates for axisymmetric $P1isoP2/P1$ finite element of the Stokes problem*, Journées de Metz 2003, Développements récents de la Méthode des Eléments finis.

Peer-Reviewed Publications

- [1] N. Dal Santo, S. Deparis, L. Pegolotti, *Data driven approximation of parametrized PDEs by Reduced Basis and Neural Networks*, arXiv:1904.01514 2019.
- [2] S. Deparis, L. Pegolotti, *Coupling non-conforming discretizations of PDEs by spectral approximation of the Lagrange multiplier space*, *Mathematical Modelling and Numerical Analysis*, <https://doi.org/10.1051/m2an/2019030>, 2019.
- [3] N. Dal Santo, S. Deparis, A. Manzoni, A. Quarteroni, *An algebraic least squares reduced basis method for the solution of nonaffinely parametrized Stokes equations*, *Computer Methods in Applied Mechanics and Engineering*, vol. 344, p. 186-208, 2019.
- [4] N. D. Santo, S. Deparis, A. Manzoni, A. Quarteroni, *Multi Space Reduced Basis Preconditioners for Large-Scale Parametrized PDEs*, *SIAM J. Sci. Comput.*, 40(2), A954A983, 2018.
- [5] C. M. Colciago, S. Deparis, *Reduced Numerical Approximation of Reduced Fluid-Structure Interaction Problems With Applications in Hemodynamics*, *Frontiers in Applied Mathematics and Statistics*, Pages 4–18. 2018.
- [6] L. Bertagna, S. Deparis, L. Formaggia, D. Forti, A. Veneziani, *The LifeV library: engineering mathematics beyond the proof of concept*, arXiv:1710.06596, 2018.
- [7] N. D. Santo, S. Deparis, A. Manzoni, *A numerical investigation of multi space reduced basis preconditioners for parametrized elliptic advection-diffusion equations*, *Communications in Applied and Industrial Mathematics*, Pages 282–297, 2017.
- [8] D. Forti, A. Quarteroni, S. Deparis, *A parallel algorithm for the solution of large-scale nonconforming fluid-structure interaction problems in hemodynamics*, *Journal Of Computational Mathematics*, vol. 35 (3), 2017, Pages 363–380.
- [9] D. Forti, M. Bukac, A. Quaini, S. Canic, S. Deparis, *A monolithic approach to fluid-composite structure interaction*, *Journal of Scientific Computing*, published online, February 2017, 26 pages.
- [10] S. Deparis, D. Forti, G. Grandperrin, A. Quarteroni, *FaCSI: A block parallel preconditioner for fluid-structure interaction in hemodynamics*, *Journal Of Computational Physics*, vol. 327, December 2016, Pages 700718.
- [11] R. Popescu, S. Deparis, M.A. Heroux, *Parallel subdomain solver strategies for the algebraic additive Schwarz preconditioner*, *Parallel Computing*, vol. 57, September 2016, Pages 137153.
- [12] J. Lee, A. Cookson, I. Roy, E. Kerfoot, L. Asner, G. Vigueras, T. Sochi, S. Deparis, C. Michler, N.P. Smith, D.A. Nordsletten, *Multi-physics Computational Modeling in CHeart*, *SIAM Journal of Scientific Computing*, vol. 38, num. 3, p. C150C178, 2016.

- [13] S. Deparis, D. Forti, P. Gervasio, A. Quarteroni, *INTERNODES: an accurate interpolation-based method for coupling the Galerkin solutions of PDEs on subdomains featuring non-conforming interfaces*, *Computers and Fluids*, vol. 141, December 2016, Pages 2241.
- [14] M. Benzi, S. Deparis, G. Grandperrin and A. Quarteroni. *Parameter estimates for the Relaxed Dimensional Factorization preconditioner and application to hemodynamics*, *Computer Methods in Applied Mechanics and Engineering*, vol. 300, num. 1, p. 129-145, 2016.
- [15] D. Balzani, S. Deparis, S. Fausten, D. Forti, A. Heinlein, A. Klawonn, A. Quarteroni, O. Rheinbach, J. Schröder, *Numerical modeling of fluid-structure interaction in arteries with anisotropic polyconvex hyperelastic and anisotropic viscoelastic material models at finite strains*, *International Journal for Numerical Methods in Biomedical Engineering*, vol. 32, Issue 10, October 2016.
- [16] P. Tricerri, L. Dede', S. Deparis, A. Quarteroni, A.M. Robertson, A. Sequeira, *Fluid-structure interaction simulations of cerebral arteries modeled by isotropic and anisotropic constitutive laws*, in *Computational Mechanics*, vol. 55 (3), p. 479-498, 2015.
- [17] S. Deparis, D. Forti and A. Quarteroni. *A Rescaled Localized Radial Basis Function Interpolation On Non-Cartesian And Nonconforming Grids*, in *SIAM Journal On Scientific Computing*, vol. 36, num. 6, p. A2745-A2762, 2014.
- [18] C. M. Colciago, S. Deparis and A. Quarteroni, *Comparisons Between Reduced Order Models and Full 3D Models for Fluid-Structure Interaction Problems in Haemodynamics*, in *Journal Of Computational And Applied Mathematics*, vol. 265, p. 120-138, 2014.
- [19] S. Deparis, G. Grandperrin and A. Quarteroni, *Parallel Preconditioners for the unsteady Navier-Stokes Equations and Applications to Hemodynamics Simulations*, in *Computers & Fluids*, vol. 92, p. 253-273, 2014.
- [20] P. J. Blanco, S. Deparis and A. C. I. Malossi, *On the continuity of mean total normal stress in geometrical multiscale cardiovascular problems*, in *Journal of Computational Physics*, vol. 251, p. 136-155, 2013.
- [21] J. Bonnemain, A. C. I. Malossi, M. Lesinigo, S. Deparis and A. Quarteroni and L. von Segesser, *Numerical simulation of left ventricular assist device implantations: comparing the ascending and the descending aorta cannulations*, in *Medical Engineering and Physics*, vol. 35, num. 10, p. 1465-1475, 2013.
- [22] A. C. I. Malossi, P. J. Blanco, P. Crosetto, S. Deparis and A. Quarteroni, *Implicit coupling of one-dimensional and three-dimensional blood flow models with compliant vessels*, in *Multiscale Modeling and Simulation*, vol. 11, num. 2, p. 474-506, 2013.

- [23] P. Reymond, P. Crosetto, S. Deparis, A. Quarteroni and N. Stergiopoulos. *Physiological simulation of blood flow in the aorta: comparison of hemodynamic indices as predicted by 3-D FSI, 3-D rigid wall and 1-D models*, in *Medical Engineering and Physics*, vol. 35, Issue 6, p. 784-791, 2013.
- [24] C. Malossi, P. Blanco and S. Deparis. *A two-level time step technique for the partitioned solution of one-dimensional arterial networks*, *Computer Methods in Applied Mechanics and Engineering*, vol. 237-240, p. 212-226, 2012.
- [25] S. Deparis and E. Lovgren, *Stabilized reduced basis approximation of incompressible three-dimensional Navier–Stokes equations in parametrized deformed domains*, *Journal of Scientific Computing*, vol. 50, num. 1 (2012), 198-212, 2011.
- [26] C. Malossi, P. Blanco, S. Deparis, A. Quarteroni *Algorithms for the partitioned solution of weakly coupled fluid models for cardiovascular flows*, *International Journal for Numerical Methods in Biomedical Engineering*, vol. 27, num. 12, p. 2035-2057, 2011.
- [27] P. Crosetto, S. Deparis, G. Fourestey and A. Quarteroni *Parallel Algorithms for Fluid-Structure Interaction Problems in Haemodynamics*, in *SIAM Journal on Scientific Computing*, vol. 33(4), p. 1598-1622, 2011.
- [28] P. Crosetto, P. Reymond, S. Deparis, D. Kontaxakis, N. Stergiopoulos and A. Quarteroni, *Fluid Structure Interaction Simulations of Physiological Blood Flow in the Aorta*, *Computers & Fluids* vol. 43(1), 46-57 (2011).
- [29] S. Deparis and G. Rozza, *Reduced basis method for multi-parameter dependent steady Navier–Stokes equations: applications to natural convection in a cavity*, *Journal of Computational Physics*, 228 (2009) 4359-4378.
- [30] S. Deparis, *Reduced basis error bound computation of parameter-dependent Navier–Stokes equations by the natural norm approach*, *SIAM Journal of Numerical Analysis*, 46 (2008) 2039-2067.
- [31] S. Sen, K. Veroy, D.B.P. Huynh, S. Deparis, N.C. Nguyen, and A.T. Patera, *Uncertainty Quantification for Reduced Basis Approximations: “Natural Norm” A Posteriori Error Estimators*, *Journal of Computational Physics* 217 (2006) pp. 37-62.
- [32] S. Deparis, M. Discacciati, G. Fourestey and A. Quarteroni. *Fluid-structure algorithms based on Steklov-Poincaré operators*, *Computer Methods in Applied Mechanics and Engineering*, vol. 195, num. 41-43, p. 5797-812, 2006.
- [33] Z. Belhachmi, C. Bernardi and S. Deparis, *Weighted Clément operator and application to the finite element discretization of the axisymmetric Stokes problem*, *Numer. Math.* vol. 105(2006), pp. 217-247.
- [34] Z. Belhachmi, C. Bernardi, S. Deparis, F. Hecht *A truncated Fourier/finite element discretization of the Stokes equations in an axisymmetric domain*, *M3AS*, Vol. 16, No. 2 (2006) 233-263.

- [35] Z. Belhachmi, C. Bernardi, S. Deparis, F. Hecht *An efficient discretization of the Navier–Stokes equations in an axisymmetric domain. Part I: The Numerical analysis*, Journal of Scientific Computing vol. 27, Numbers 1-3, 2006, pp. 97-110
- [36] S. Deparis, M. A. Fernández and L. Formaggia, *Acceleration of a fixed point algorithm for fluid-structure interaction using transpiration conditions*, M2AN 37(4) 2003, pp. 601–616.
- [37] S. Deparis, M. A. Fernández, L. Formaggia and F. Nobile, *Modified fixed point algorithm in fluid-structure interaction*, Comptes Rendues de Mecanique 331 (2003) pp. 525–530.

Book chapters

- [1] C. Colciago, S. Deparis, D. Forti, *Fluid-structure interaction for vascular flows: from supercomputers to laptops*, in Fluid-Structure Interaction: Modeling, Adaptive Discretization and Solvers, Radon Series on Computational and Applied Mathematics, Berlin, de Gruyter 2017.
- [2] D. Forti, S. Deparis, A. Quarteroni, *A fluid–structure interaction algorithm using radial basis function interpolation between non-conforming interfaces*, in Advances in Computational Fluid-Structure, Birkhauser 2015

Books editor

- [1] Numerical Mathematics and Advanced Applications - ENUMATH 2013, Editors: Abdulle, Assyr; Deparis, Simone; Kressner, Daniel; Nobile, Fabio; Picasso, Marco, Series: Lecture Notes in Computational Science and Engineering 103, Springer International Publishing, 2015 doi:10.1007/978-3-319-10705-9

Peer-Reviewed Conference Proceedings

- [1] L. Dede', E. Faggiano, M. Fedele, A. Tagliabue, S. Deparis, D. Forti, A. Quarteroni *Modeling the fluid dynamics of the heart: from blood flows in idealized left ventricles to patient-specific aortic valve simulations*. 2nd International Workshop on Latest Advances in Cardiac Modeling - LACM2015, Munich, Germany, 2015.
- [2] D. Balzani, S. Deparis, S. Fausten, D. Forti, A. Heinlein, A. Klawonn, A. Quarteroni, O. Rheinbach, J. Schröder, *Aspects of Arterial Wall Simulations: Nonlinear Anisotropic Material Models and Fluid Structure Interaction*. 11th World Congress on Computational Mechanics (WCCM XI) / 5th European Conference on Computational Mechanics (ECCM) / 6th European Conference on Computational Fluid Dynamics (ECFD), Barcelona, Spain, 2014.
- [3] G. Rozza, N.C. Nguyen, A.T. Patera, and S. Deparis, *Reduced Basis Methods and A Posteriori Error Estimators for Heat Transfer Problems*, Proceedings of the ASME HT 2009 summer conference.

- [4] S. Deparis, M. Discacciati, and A. Quarteroni, *A domain decomposition framework for fluid-structure interaction problems*, Proceedings of the Third International Conference on Computational Fluid Dynamics (ICCFD3), Toronto, July 2004 (C. Groth and D. Zingg editors).
- [5] S. Deparis, Miguel A. Fernández, L. Formaggia and F. Nobile, *Acceleration of a fixed point algorithm for fluid-structure interaction using transpiration conditions*, Computational Fluid and Solid Mechanics 2003, J. Bathe (Editor), Elsevier Science Ltd.
- [6] S. Deparis and C. Martini, *Superhedging strategies and balayage in discrete time*, in Proceedings of the 4th Ascona Conference on Stochastic Analysis, Random Fields and Applications, Progress in Probability series, Birkhäuser Verlag 2004.

Articles Submitted for Publication

- [1] C. Colciago and S. Deparis, *Reduced order models for fluid-structure interaction problems with applications to haemodynamics*, submitted.
- [2] N. Dal Santo, S. Deparis, A. Manzoni and A. Quarteroni, *Multi space reduced basis preconditioners for large-scale parametrized PDEs*, submitted.
- [3] L. Bertagna, S. Deparis, L. Formaggia, D. Forti and A. Veneziani, *The LifeV library: engineering mathematics beyond the proof of concept*, submitted.

Conference Proceedings (without review)

- [1] L. Dede', S. Deparis, D. Forti, A. Gerbi and A. Quarteroni, *Coupled models for integrated heart simulations: a numerical study of the fluid dynamics in the left ventricle*, 4th International Conference on Computational and Mathematical Biomedical Engineering, Ecole Normale Supérieure de Cachan, Cachan, France, 2015.
- [2] S. Deparis, D. Forti, A. Heinlein, A. Klawonn, A. Quarteroni, O. Rheinbach, *A Comparison of Preconditioners for the Steklov–Poincaré Formulation of the Fluid-Structure Coupling in Hemodynamics*, Proc. Appl. Math. Mech., 2015: 9394.
- [3] J. Bonnemain, S. Deparis and A. Quarteroni. *Connecting Ventricular Assist Devices to the Aorta: a Numerical Model*. Matematica e Cultura 2011, Venice, Italy, 2012.
- [4] T. M. Lassila, A. C. I. Malossi, M. Astorino and S. Deparis. *Geometrical multiscale model of an idealized left ventricle with fluid-structure interaction effects coupled to a one-dimensional viscoelastic arterial network*. ECCOMAS Thematic International Conference on Simulation and Modeling of Biological Flows (SIMBIO 2011), Brussels, Belgium, 2011.
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