

Tommaso Taddei

Updated on January 7, 2025

Professional Address

Institut de Mathématiques de Bordeaux, Université de Bordeaux, Talence, France 33400
tommaso.taddei@inria.fr, +33 5 40 00 21 01
Orcid-id: <https://orcid.org/0000-0002-3134-3730>

EDUCATION

Doctor of Philosophy, Mechanical Engineering September 2013 - September 2016
Massachusetts Institute of Technology, Cambridge, MA
Major: Computational Science and Engineering
Minor: Mechanics
GPA: 4.90/5

Master of Science, Mathematical Engineering September 2010 - December 2012
Politecnico di Milano, Milan, Italy
Major: Computational Science and Numerical Analysis
Final Grade: 110/110 *cum laude*

Master of Science, Engineering September 2010 - December 2012
Alta Scuola Politecnica, Milan and Turin, Italy

Bachelor of Science, Mathematical Engineering September 2007 - September 2010
Politecnico di Milano, Milan, Italy
Final Grade: 110/110 *cum laude*

High-school diploma September 2002 - July 2007
Liceo scientifico Niccolò Rodolico, Florence, Italy
Final Grade: 100/100

RESEARCH INTERESTS

I am interested in the development, the analysis and the implementation of model order reduction and data assimilation methods, with applications in continuum mechanics. Current topics include nonlinear approximation methods for advection-dominated problems, and component-based domain decomposition methods for nonlinear PDEs.

APPOINTMENTS AND RESEARCH EXPERIENCE

Inria Bordeaux South-West October 2018 - present
Équipe MEMPHIS, Institut de Mathématiques de Bordeaux (IMB) Permanent researcher (CR)

Université Pierre et Marie Curie (Sorbonne University) October 2016 - September 2018
Laboratory Jacques-Louis Lions (LJLL) Post-doctoral associate
Adviser: Yvon Maday

Massachusetts Institute of Technology September 2013 - September 2016
Hatsopoulos Microfluids Laboratory (HML) Research assistant (PhD)

Adviser: Anthony T. Patera

Politecnico di Milano
Laboratory for Modeling and Scientific Computing (MOX)

April 2013 - July 2013
Research fellow

Ecolé polytechnique fédérale de Lausanne
Mathematical Institute of Computational Science and Engineering
Advisers: Alfio Quarteroni, Gianluigi Rozza

May 2012 - July 2012
Summer fellow

HABILITATIONS

Abilitazione Scientifica Nazionale alla Funzione di Professore Universitario di Seconda Fascia
Settore Concorsuale 01/A5 - Analisi Numerica (Italian National Scientific Qualification)

24/09/2022 — 24/09/2032

Habilitation à Diriger les Recherches (HDR, French National Scientific Qualification) 24/04/2024 —
Title of the dissertation: Some contributions to model reduction of parametric systems in nonlinear mechanics.

Members of the jury: Charbel Farhat (President), Angelo Iollo, Yvon Maday.

Reviewers: Virginie Ehrlicher, Jan Hesthaven, Mario Ohlberger.

TEACHING ACTIVITIES

Instructor. Course: Introduction to the reduced basis method (12 hours) 2020, 2022, 2024
Doctoral program in Mathematics and Informatics; University of Bordeaux, France.

Instructor. Course: Introduction to the reduced basis method (18 hours) February 2023
Doctoral program in Aerospace Engineering; Politecnico di Torino, Italy.
The course was part of the program “Didattica di Eccellenza”¹.

Instructor. Course: Registration techniques for model order reduction (1.5 hours) June 2024
The course was part of the doctoral course “Réduction de modèle et traitement de données” at University of La Rochelle.

Teaching assistant. Course: Introduction to numerical analysis (36 hours). 2019, 2020, 2021, 2022, 2023
Bachelor of Science; University of Bordeaux, France.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

Postdoctoral fellows:

1. Lei Zhang (Inria, 2019-2021, *Nonlinear reduction strategies for hyperbolic problems*).
2. Birgul Koc (Inria-IFPEN, 2022-2024, *Nonlinear reduction strategies for porous media problems*, with Angelo Iollo).
3. Joyce Ghantous (Inria, 2024-2026, *Registration-based model reduction with mesh adaptation*, with Nicolas Barral).

PhDs:

1. Giulia Sambataro (Inria, 2019-2022, *Component-based model order reduction strategies for THM equations*, with Angelo Iollo).
2. Eki Agouzal (Inria-EDF, 2021 - 2024, *Estimation of the mechanical behavior of containment by data assimilation*, with Michel Bergmann).

¹http://dottorato.polito.it/zxd/cms_data/attachment/30/Eccellenza_regole.pdf

3. Ishak Tifouti (Inria, 2022-2025, *Registration-based model reduction with mesh adaptation*, with Nicolas Barral).
4. Jon Labatut (Inria-Onera, 2022-2025, *Identification and adaptive mapping of coherent structures in parameterized compressible flows. Application to model order reduction*, with Jean-Baptiste Chapelier, Angelo Iollo, Alberto Remigi, Denis Sipp).
5. Abdessamad Moussaddak (Inria-EDF, 2023 - 2026, *Model reduction for river and coastal hydraulics.*, with Astrid Decoune).
6. Alexis Valls (Inria, 2024-2027, *Stochastic reduced order models for real-time data assimilation*, with Valentin Resseguier).

Master students: (**M2** = second-year master student, 6-month internship; **M1** = first-year master student, 4/5-month internship).

1. **M2:** Élise Grosjean (Sorbonne University, 2018, *Lumped models for highly-confined cylinder arrays under external fluid loads*, with Yvon Maday);
2. **M2:** Mathieu Nastorg (University of Bordeaux, 2020, *Registration of three-dimensional vascular skeletons and creation of a space of aortic aneurysms*, with Angelo Iollo).
3. **M2:** Ali Nourreddine (University of Bordeaux, 2022, *Mesh adaptation for model reduction of advection-dominated flows*, with Nicolas Barral).
4. **M2:** Dylan De Lima Viana (Inria-Onera, 2022, *Nonlinear model reduction strategies for advection-dominated flows: application to turbo-machinery*, with Angelo Iollo and Denis Sipp).
5. **M2:** Monica Rubbini (Politecnico di Torino, 2022, *Reduced-order models with applications to fluid-dynamics*, with Andrea Ferrero and Alessandro Alaia).
6. **M2:** Abdessamad Moussaddak (Inria-EDF, 2023, *Model reduction for river and coastal hydraulics. Implementation of error estimators in the TELEMAC-2D code*, with Astrid Decoune and Angélique Ponçot).
7. **M1:** Maxence Mansais (ENS Paris Saclay, 2022, *Quasi-optimal transportation maps for model reduction of advection-dominated flows*, with Angelo Iollo).

INSTITUTIONAL RESPONSIBILITIES

Member of the local Inria committee for technological developments (CDT) September 2022–ongoing
 The *Commission des Développements Technologiques* (CDT) is responsible for evaluating projects that aim at hiring research engineers at Inria.

Organizer of the seminar series “Calcul Scientifique et Modélisation” at University of Bordeaux
 (with Christèle Etchegaray) October 2019 - August 2022.

Member of PhD committee (*comité de suivi*): Mirco Ciallella (Inria Bordeaux, 2019 - 2022), Niami Nasr (University of Bordeaux, 2020 - 2023), Robin Ben Klein (TU Delft, CWI Amsterdam, 2024–), Marissa Whitby (Stevens Institute of Technology, United States, 2024–).

Jury member in PhD defense: Nicolas Cagniard (Sorbonne University, 2018), Francesco Romor (Sissa Trieste, 2023), Simon Le Berre (Paris Sciences & Lettres University, 2023), Bruno Vuillod (ENSAM Bordeaux, 2024), Willy Haik (Sorbonne University, 2024), Thomas Philibert (University of Bordeaux, 2024).

Reviewer of PhD theses: Caterina Bigoni (EPFL, 2020), Niccolò Discacciati (EPFL, 2023).

ORGANIZATION OF SCIENTIFIC MEETINGS

Co-organizer of mini-symposia at

1. SIAM CSE 2019 (Spokane, US), *with Laura Iapichino and Kathrin Smetana.*
2. ENUMATH 2019 (Egmond aan Zee, The Netherlands), *with Laura Iapichino and Kathrin Smetana.*
3. ECCOMAS 2020 (Paris, France) *with Angelo Iollo and Simona Perotto.*
4. SIAM CSE 2021 (Forth Dale, US) *with Michel Bergmann and Kathrin Smetana.*
5. ECCOMAS 2022 (Oslo, Norway) *with Andrea Ferrero.*
6. SIAM CSE 2023 (Amsterdam, The Netherlands), *with Giovanni Stabile and Masayuki Yano.*

Co-organizer of the workshop on "Reduced-order models at work: Industry and Medicine", *with Mejdi Azaiez, Michel Bergmann and Angelo Iollo*

Bordeaux, France. March 2022; indico.math.cnrs.fr/event/5543/

Co-organizer of the "ARIA 1st Workshop", *with Michel Bergmann and Angelo Iollo.*

Bordeaux, France. March 2023; project.inria.fr/aria/aria-1st-workshop/

Co-organizer of the summer school CEMRACS 2021 on "Data assimilation and model reduction in high-dimensional problems", *with Virginie Ehrlicher, Damiano Lombardi, Olga Mula, Fabio Nobile.*

Luminy, France. July 2021 - August 2021; cirm-math.com/cemracs.html

Co-organizer of the summer school on numerical analysis 2024 on "Reduced-order models: Bridging PDE models and simulation data", *with Jean-Philippe Argaud, Michel Bergmann, Angelo Iollo, Gaëlle Poette, Angélique Ponçot.*

Saclay, France. July 2024; ecoles-cea-edf-inria.fr/en/schools/ecole-analyse-numerique-2024/

REVIEWING AND EDITORIAL ACTIVITIES

Guest Editor of the Special Issue "CEMRACS 2021 - Data assimilation and reduced modeling for high-dimensional problems". ESAIM: Proceedings and surveys, 2023.

Reviewer of several (≈ 10 per year) articles for international journals, including: Advances in Computational Mathematics (ACOM); Communications on Applied Mathematics and Computation; Communications in Computational Physics; Comptes rendus Mathématique; Computational Methods in Applied Mathematics; Computer and fluids; Computers & Mathematics with Applications; Computer Methods in Applied Mechanics and Engineering (CMAME); ESAIM: Mathematical Modelling and Numerical Analysis (M2AN); Journal of Computational Physics (JCP); SIAM/ASA Journal on Uncertainty Quantification (JUQ); SIAM Journal on Numerical Analysis (SINUM); SIAM Journal on Scientific Computing (SISC).

ONGOING COLLABORATIONS

Nicolas Barral (Bordeaux INP) 2022 -
Topic: adaptive mesh generation for parametric problems.

Andrea Ferrero (Politecnico di Torino) . 2020 -
Topic: registration-based model reduction of advection-dominated flows.

Angelo Iollo (University of Bordeaux) 2018 -
Topics: nonlinear interpolation based on optimal transport; domain decomposition.

Benjamin Sanderse (CWI) and Alessia del Grosso (Inria). 2024 -
Topic: structure-preserving model reduction of nonlinear conservation laws.

AWARDS

Prime d'encadrement doctoral et de recherche (PEDR), Inria, 2020–2023; 2024–2027

Presidential Graduate Fellow, Massachusetts Institute of Technology, Academic Year 2013/2014.

Carlo Cercignani's prize for the best master thesis in Scientific Computing, Politecnico di Milano, 2012.

Best undergraduate student prize, Bachelor degree in Mathematical Engineering, Politecnico di Milano, Academic Year 2007/2008.

GRANTS

Principal investigator

1. IDEX Research Grant: *Towards computer-aided treatment planning for vascular diseases: assess the aneurysm rupture risk using CT data and PDE models*, 2020-2021.
Funding agency: IDEX Bordeaux, Projet EMERGENCE. *Award:* 30,000 €.
2. EDF-Inria project. *Model reduction for free-surface flows in Hydraulics: feasibility study and methodological analysis (part 1)*, 2019.
Funding agency: EDF R&D. *Award:* 40,000 €.
3. EDF-Inria project. *Model reduction for free-surface flows in Hydraulics: feasibility study and methodological analysis (part 2)*, 2020-2021.
Funding agency: EDF R&D. *Award:* 50,000 €.
4. Action Exploratoire Inria: *Adaptive Meshes for Model Order Reduction (AM²OR)*. Co-PI: Nicolas Barral (Bordeaux INP). 2022-2026.
Funding agency: Inria. *Award:* $\approx 250,000^2$ €.
5. Inria Associate Teams program: *Structure-Preserving Approximations of Dynamical systems in Engineering and Science* Co-PI: Benjamin Sanderse (CWI). 2024 -2026.
Funding agency: Inria and CWI *Award:* 30,000³ €.

Support of industrial PhD theses (*contrat d'accompagnement*)

1. Giulia Sambataro (PhD thesis with ANDRA, 2019-2022). *Award:* 45,000 €.
2. Eki Agouzal (PhD thesis with EDF, 2021-2024). *Award:* 45,000 €.
3. Abdessamad Moussaddak (PhD thesis with EDF, 2023-2026). *Award:* 45,000 €.

Collaborator

1. NEUP Research Grant: *Accurate and Efficient Parametric Model-Order Reduction for Turbulent Thermal Transport*, 2018-2022.
Funding agency: US Department of Energy. *Award:* 800,000 \$. *P.I.:* Paul Fischer.
2. Marie Skłodowska-Curie Actions, Research and Innovation Staff Exchange. *Accurate ROMs for Industrial Applications (ARIA)*, 2019-2023.
Funding agency: European research council⁴. *Award:* 936,000 €. *P.I.:* Angelo Iollo.
3. ANR research grant. *Reduced Location Uncertainty Models (RedLUM)*, 2024-2028.
Funding agency: French National Research Agency. *Award:* 624,000 €. *P.I.:* Dominique Heitz.
Funding amount for Inria: 145,000 € (1 PhD thesis).

²The project funds 1 PhD thesis and a two-year postdoctoral fellowship at Inria and provides 20,000 € for operational costs.

³The project funds research stays at the partner institution.

⁴Call: H2020-MSCA-RISE-2018.

RESEARCH STAYS IN INTERNATIONAL INSTITUTIONS

1. Research stay at Laboratory Jacques-Louis Lions, January 5 – February 1 2014, Paris (France). *Host:* Yvon Maday.
2. Research stay at Singapore University of Technology and Design (SUTD), March 22 – April 4 2015, Singapore. *Host:* Anthony Patera.
3. Research stay at École Polytechnique Fédérale de Lausanne (EPFL), May 15 – 17 2018, Lausanne (Switzerland). *Host:* Fabio Nobile.
4. Research stay at Virginia Tech July 1-9, 2022, Blacksburg (United States). *Host:* Traian Iliescu.
5. Research stays at Politecnico di Torino, July 2020, February 2022, February 2023, Torino (Italy). *Host:* Andrea Ferrero.
6. Research stays at Stanford University, February 2022, January 2023, Stanford (United States). *Host:* Charbel Farhat.

REFERENCES

Prof. Angelo Iollo. University of Bordeaux, angelo.iollo@inria.fr

Prof. Yvon Maday. Sorbonne University, yvon.maday@sorbonne-universite.fr

Prof. Anthony T. Patera. Massachusetts Institute of Technology, patera@mit.edu

PUBLICATIONS

Referred publications in International Journals

1. T. Taddei, S. Perotto, A. Quarteroni, *Reduced basis techniques for nonlinear conservation laws*. ESAIM: Mathematical Modelling and Numerical Analysis (M2AN), 2015.
2. T. Taddei, A. Quarteroni, S. Salsa, *An Offline-Online Riemann solver for one-dimensional systems of conservation laws*. Vietnam Journal of Mathematics, 2016.
3. T. Taddei, J.D. Penn, A.T. Patera, *Validation by Monte Carlo sampling of experimental observation functionals*. International Journal for Numerical Methods in Engineering, 2017.
4. T. Taddei, *An adaptive parametrized-background data-weak approach to variational data assimilation*. ESAIM: Mathematical Modelling and Numerical Analysis, 2017.
5. P. Gallinari, Y. Maday, M. Sangnier, O. Schwander, T. Taddei, *Reduced basis' acquisition by a learning process for rapid on-line approximation of solution to PDE's: Laminar Flow Past a Backstep*. Archives of Computational Methods in Engineering (S.I.: Machine Learning in Computational Mechanics), 2018.
6. T. Taddei, J. D. Penn, M. Yano, A. T. Patera, *Simulation-Based Classification; a model-order-reduction approach for Structural Health Monitoring*. Archives of Computational Methods in Engineering (S.I.: Machine Learning in Computational Mechanics), 2018.
7. T. Taddei, A. T. Patera, *A localization strategy for data assimilation; application to state estimation and parameter estimation*. SIAM Journal on Scientific Computing (SISC), 2018.
8. L. Fick, Y. Maday, A. T. Patera, T. Taddei, *A stabilized POD model for turbulent flows over a range of Reynolds numbers: optimal parameter sampling and constrained projection*. Journal of Computational Physics, 2018.
9. Y. Maday, T. Taddei, *Adaptive PBDW approach to state estimation: noisy observations; user-defined update spaces*. SIAM Journal on Scientific Computing (SISC), 2019.
10. T. Taddei, *An offline/online procedure for dual norm calculations of parameterized functionals: empirical quadrature and empirical test spaces*. Advances in Computational Mathematics (ACOM), 2019.

11. T. Taddei, *A registration method for model order reduction: data compression and geometry reduction*. SIAM Journal on Scientific Computing (SISC), 2020.
12. T. Taddei, L. Zhang, *Space-time registration-based model reduction of parameterized one-dimensional hyperbolic PDEs*. ESAIM: Mathematical Modelling and Numerical Analysis, 2021.
13. T. Taddei, L. Zhang, *A discretize-then-map approach for the treatment of parameterized geometries in model order reduction*. Computer Methods in Applied Mechanics and Engineering (CMAME), 2021.
14. T. Taddei, L. Zhang, *Registration-based model reduction in complex two-dimensional geometries*. Journal of Scientific Computing (JSC), 2021.
15. A. Ferrero, T. Taddei, L. Zhang, *Registration-based model reduction of parameterized two-dimensional conservation laws*. Journal of Computational Physics (JCP), 2022.
16. A. Iollo, G. Sambataro, T. Taddei, *A projection-based model reduction method for nonlinear mechanics with internal variables: application to thermo-hydro-mechanical systems*. International Journal for Numerical Methods in Engineering (IJNME), 2022.
17. A. Iollo, T. Taddei, *Mapping of coherent structures in parameterized flows by learning optimal transportation with Gaussian models*. Journal of Computational Physics (JCP), 2022.
18. A. Iollo, G. Sambataro, T. Taddei, *A one-shot overlapping Schwartz method for component-based model reduction: application to nonlinear elasticity*. Computer Methods in Applied Mechanics and Engineering (CMAME), 2023.
19. K. Smetana, T. Taddei, *Localized model reduction for nonlinear elliptic partial differential equations: localized training, partition of unity, and adaptive enrichment*. SIAM Journal on Scientific Computing (SISC), 2023.
20. E. Agouzal, J.P. Argaud, M. Bergmann, G. Ferté, T. Taddei, *A projection-based reduced-order model for parametric quasi-static nonlinear mechanics using an open-source industrial code*. International Journal for Numerical Methods in Engineering (IJNME), 2024.
21. N. Barral, T. Taddei, I. Tifouti, *Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity*. Journal of Computational Physics (JCP), 2024.
22. T. Taddei, X. Xu, L. Zhang, *A non-overlapping optimization-based domain decomposition approach to component-based model reduction of incompressible flows*. Journal of Computational Physics (JCP), 2024.
23. E. Agouzal, T. Taddei, *Accelerated construction of projection-based reduced-order models via incremental approaches*. Advanced Modeling and Simulation in Engineering Sciences (AMSES) (S.I.: Model reduction: past, present and future), 2024.
24. S. Cucchiara, A. Iollo, T. Taddei, H. Telib, *Model order reduction by convex displacement interpolation*. Journal of Computational Physics (JCP), 2024.
25. T. Taddei, *Compositional maps for registration in complex geometries*. SIAM Journal on Scientific Computing (SISC), accepted in 2024.

Submitted Papers

1. E. Agouzal, J.P. Argaud, M. Bergmann, G. Ferté, T. Taddei, *Projection-based model order reduction for prestressed concrete with an application to the standard section of a nuclear containment building*. Submitted to Computer and Structures (C&S), 2024.
2. A. Iollo, T. Taddei, *Point-set registration in bounded domains via the Fokker-Planck equation*. Submitted to Comptes Rendus Mathématique (CRAS), 2024.
3. T. Taddei, X. Xu, L. Zhang, *Optimization-based model order reduction of fluid-structure interaction problems*. Submitted to Journal of Computational Physics (JCP), 2024.

Dissertations

1. T. Taddei, *Numerical investigation of the coupling between reduced models in Hemodynamics* (in Italian). Bachelor thesis, Politecnico di Milano, Mathematical Engineering, 2010.
2. T. Taddei, *The reduced basis method: transfinite maps for parameterized domains and conservation laws*. Master thesis, Politecnico di Milano, Mathematical Engineering, 2012.
3. T. Taddei, *Model order reduction methods for data assimilation: state estimation and structural health monitoring*. Doctoral thesis, Massachusetts Institute of Technology, Mechanical Engineering, 2016.
4. T. Taddei, *Some contributions to model reduction of parametric systems in nonlinear mechanics*. French national habilitation in Applied Mathematics, University of Bordeaux, 2024.

Conference proceedings

1. D.Q. Bui, P. Mollo, F. Nobile, T. Taddei. *A component-based data assimilation strategy with applications to vascular flows*. ESAIM: Proceedings and Surveys, 2023.
2. Y. C. Taumhas, D. Labeurthre, F. Madiot, O. Mula, T. Taddei. *Impact of physical model error on state estimation for neutronics applications*. ESAIM: Proceedings and Surveys, 2023.
3. A. Iollo, G. Sambataro, T. Taddei. *Component-based model order reduction procedure for large scales thermo-hydro-mechanical systems*. 10th edition of the International Conference on Computational Methods for Coupled Problems in Science and Engineering, 2023.
4. J. Labatut, A. Iollo, T. Taddei, J. B. Chapelier, D. Sipp, A. Remigi. *Non linear CFD data interpolation for compressible parametric flows dominated by convection*. AIAA SciTech 2025.
5. N. Barral, T. Taddei, I. Tifouti. *Registration-based model reduction with local reduced order bases*. AIAA SciTech 2025.

PRESENTATIONS

Invited talks.

1. A reduced basis technique for turbulent flows. Closing workshop of the project MECASIF on reduced order methods for wind and marine current power, February 20-21, 2017, Sophia Antipolis (France).
2. A reduced basis technique for long-time unsteady turbulent flows. European workshop on ROMs for industrial applications, October 16-17, 2017, Turin (Italy).
3. Localized model reduction for nonlinear elliptic PDEs. Journées Calcul&Simulation en Nouvelle Aquitaine. December 6-7, 2021. Archacon (France).
4. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. Accurate ROMs for Industrial Applications at Virginia Tech (ARIA@VT). July 6-8, 2022. Blacksburg (United States).
5. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. Follow-up meeting GARTEUR⁵-AD-AG60 ML4AERO. October 5-6, 2022. Madrid (Spain).
6. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. 6th International Workshop on Model Reduction Techniques (MORTech 2023). November 22-24, 2023. Paris (France).
7. Registration in bounded domains for model reduction of parametric conservation laws. Model Reduction and Surrogate Modeling (MORE2024). September 9-13, 2024. La Jolla (United States).
8. Model reduction of conservation laws: nonlinear approximation and optimal projection. CWI Semester Program; workshop on “Uncertainty quantification for high-dimensional problems” November 11-15, 2024. Amsterdam (the Netherlands).
9. Model reduction of conservation laws: nonlinear approximation and optimal projection. ARIA final workshop. November 25-27, 2024. Trieste (Italy).

⁵Group for Aeronautical Research and Technology in Europe (GARTEUR), <https://garteur.org/>.

10. Registration in bounded domains for model reduction of parametric conservation laws. Workshop on “Scientific Machine Learning: error control and analysis”. January 15-16, 2025. Besançon (France).

Talks at Department seminars, online seminars and colloquia.

1. Model order reduction methods for data assimilation: simulation-based approaches for state estimation, and damage identification. Seminar of scientific computing and modeling at IMB, December 21, 2017. Bordeaux (France). *Invited by Angelo Iollo.*
2. An adaptive parameterized-background data-weak approach to state estimation. Seminar of numerical analysis at EPFL, May 15, 2018. Lausanne (Switzerland). *Invited by Fabio Nobile.*
3. Model order reduction techniques for CFD: nonlinear approximations and constrained projection. Séminaire de mécanique d’Orsay (LIMSI), April 18, 2019. Orsay (France). *Invited by Lionel Mathelin.*
4. Model order reduction techniques for CFD: nonlinear approximations and constrained formulation. Seminar in applied mathematics at TU Eindhoven, February 4, 2020. Eindhoven (The Netherlands). *Invited by Laura Iapichino.*
5. Registration-based model reduction of parameterized PDEs with sharp gradients. SISSA SIAM Student Chapter Colloquia 2020, June 18, 2020. Online. *Invited by Gianluigi Rozza.*
6. Registration-based model reduction of parameterized advection-dominated PDEs. Seminar at Lawrence Livermore National Lab (Data driven physical simulations (DDPS) Virtual Seminar Series), April 18 2021. Online. *Invited by Youngsoo Choi.*
7. Registration-based model reduction of parameterized advection-dominated PDEs. Seminar at Max Planck Institute, CSC Seminar. April 20, 2021. Online. *Invited by Neeraj Sarna and Peter Benner.*
8. A discretize-then-map approach for the treatment of parameterized geometries in model order reduction. Aria virtual seminar, September 21 2021. Online. *Invited by Angelo Iollo.*
9. *Gérer les déchets radioactifs par des simulations.* Unithé ou café, dissemination seminar at Inria Bordeaux September 24, 2021. Online. *Invited by Inria Bordeaux HR.*
10. Localized model reduction for nonlinear elliptic PDEs. Seminar in Applied Mathematics CERMICS, October 14, 2021. Paris (France). *Invited by Claude Le Bris.*
11. Localized model reduction for nonlinear elliptic PDEs. Seminar in Applied Mathematics in Besançon, November 4, 2021. Besançon (France). *Invited by Geneviève Dusson.*
12. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. CCSE-UTIAS Joint Seminar. University of Toronto Institute for Aerospace Studies, November 3, 2022. Toronto (Canada). *Invited by Masayuki Yano.*
13. Registration of coherent structures in bounded domains: mathematical analysis and application to model reduction. Inria-Safran Tech meeting. March 15, 2023. Paris (France). *Invited by Alberto Remigi.*
14. One-shot domain-decomposition methods for component-based model order reduction. Numerical Analysis of Galerkin ROMs (NA G-ROMs) online seminar series. March 28, 2023. Online. *Invited by Francesco Ballarin, Birgul Koc, Traian Iliescu, Maria Strazzullo.*
15. Some (new) results on least-square Petrov-Galerkin projection for parametric PDEs. Aria virtual seminar, May 23, 2024. Online. *Invited by Angelo Iollo.*
16. Some contributions to model reduction of parametric systems in nonlinear mechanics. Seminar of scientific computing at University of Pavia, June 19, 2024. Pavia (Italy). *Invited by Carlo Marcati.*

Contributed talks.

1. A model reduction approach to structural health monitoring. Conference on "Model Reduction for Parametrized Systems" (MOREPAS III). October 13-16, 2015, Trieste (Italy).
2. A model reduction approach to structural health monitoring. Data-driven Model Order Reduction and Machine Learning (MOR+ML) workshop, March 30 – April 1, 2016, Stuttgart (Germany).

3. Simulation-based classification; a model-order-reduction approach for structural health monitoring. Conference on "Recent developments in numerical methods for model reduction", Institut Henri Poincaré. November 7-10, 2016, Paris (France).
4. An adaptive parameterized-background data-weak approach to state estimation. Conference on "Model Reduction for Parametrized Systems" (MOREPAS IV). April 10-13, 2018, Nantes (France).
5. A nonlinear approximation procedure for parameterized model order reduction. ENUMATH 2019, September 30-October 4, 2019. Egmond aan Zee (Netherlands).
6. A registration method for model order reduction: data compression and geometry reduction. LIA COPDESC and Lions Magenes days. November 4-7, 2019, Paris (France).
7. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. Conference on "Model Reduction and Surrogate Modeling" (MORE). September 19-23, 2022, Berlin (Germany).

Talks in a minisymposium.

1. An adaptive parametrized-background data-weak approach to state estimation; application to heat transfer companion experiments. SIAM CSE 2015, March 14-18, 2015, Salt Lake City (United States).
2. An adaptive parametrized-background data-weak approach to state estimation; application to heat transfer companion experiments. USNCCM 13, July 26-30, 2015, San Diego ((United States).
3. A reduced basis technique for turbulent flows. ADMOS 2017, June 26-28, 2017. Verbania (Italy).
4. An adaptive PBDW approach to variational data assimilation. ENUMATH 2017, September 25-29, 2017. Voss (Norway).
5. A nonlinear model order reduction procedure for hyperbolic problems. SIAM CSE 2019, February 25 – March 1, 2019. Spokane ((United States).
6. A registration method for model order reduction: data compression and geometry reduction. Mortech 2019, November 20-22, 2019. Paris (France).
7. Registration-based model reduction of parameterized PDEs with sharp gradients. ECCOMAS 2020, January 11-15, 2021, Online.
8. Registration-based model reduction of parameterized PDEs with sharp gradients: application to RANS. SIAM CSE 2021, March 1-5, 2021, Online.
9. Registration-based model reduction of parameterized PDEs with sharp gradients. COUPLED 2021, June 13-16, 2021, Online
10. Registration-based model reduction of parameterized PDEs. ICOSAHOM 2021, July 12-16, 2021, Online.
11. Registration-based model reduction of parameterized advection-dominated PDEs. Dolomites Workshop on Constructive Approximation and Applications, September 6-10 2021, Online.
12. Registration-based model reduction of parameterized advection-dominated PDEs. SIMAI 2020+2021, August 30 - September 3, Parma (Italy).
13. Registration-based model reduction of parameterized PDEs. MMLDT-CSET conference, September 26-29, 2021 San Diego ((United States). Hybrid.
14. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. ECCOMAS 2022, June 5-9, 2022, Oslo (Norway).
15. Registration-based model reduction of parameterized advection-dominated PDEs. GIMC SIMAI YOUNG 2022 Workshop. September 29-30, 2022, Pavia (Italy).
16. Registration-based model reduction of advection-dominated PDEs with spatio-parameter adaptivity. SIAM CSE 2023, February 26 - March 3, 2023, Amsterdam (the Netherlands).
17. Registration-based model reduction of parameterized PDEs with spatio-parameter adaptivity. IACM Computational Fluids Conference (CFC) 2023, April 26-29, 2023, Cannes (France).

18. A one-shot overlapping Schwartz method for component-based model order reduction of nonlinear PDEs. COUPLED 2023, June 5-7, 2023, Chania (Greece).
19. Registration of coherent structures in bounded domains: mathematical analysis and application to model reduction. ENUMATH 2023, September 4-8, 2023, Lisbon (Portugal).
20. Progressive construction of projection-based ROMs for data assimilation. ECCOMAS 2024, June 3-7, 2024, Lisbon (Portugal).