

## Curriculum Vitae

STEFANO MASET

Born in Conegliano September 16 1965.  
Degree in Computer Sciences in Udine 1991.  
Ph.d in Computational Mathematics in Padova 1995.

### Academic positions

- 1) researcher in Numerical Analysis from 1995 to 2002 (University of Trieste);
- 2) associate professor of Numerical Analysis since 2002 (University of Trieste);
- 3) Italian National Scientific Qualification for Full Professors since 2013.

### Teaching activity:

- 1) Linear Algebra courses held at the Faculty of Engineering (University of Trieste) from 2001 to 2009.
- 2) Numerical Analysis courses held at the Faculty of Engineering (University of Trieste) from 1995 to 2012.
- 3) Numerical Analysis courses held at the Department of Engineering and Architecture (University of Trieste) from 2013 to present.
- 4) Applied Mathematics courses held at the Department of Engineering and Architecture (University of Trieste) from 2013 to present.
- 5) Advanced Numerical Analysis courses held at Phd Doctorate Schools in Fluidodynamics and Earth-Science (University of Trieste) from 2014 to present and Doctorate School in Computational Mathematics (University of Padua) from 2012 to 2014.

Scientific activity: author of almost fifty scientific publications on international journals

### List of publications

- 1) S. Maset (2018). Conditioning and relative error propagation in linear autonomous ordinary differential equations. DISCRETE AND CONTINUOUS DYNAMICAL SYSTEM SERIES B, vol. 23 (7), pp. 2879-2909.
- 2) L. Lopez and S. Maset (2018). Time-transformations for the event location in discontinuous ODEs. MATHEMATICS OF COMPUTATION, vol 87 (313), pp. 2321-2341.
- 3) Huang, Beibei, Maset, Stefano, Bohinc, Klemen (2017). Interaction between Charged Cylinders in Electrolyte Solution; Excluded Volume Effect. JOURNAL OF PHYSICAL CHEMISTRY. B, CONDENSED MATTER, MATERIALS, SURFACES, INTERFACES & BIOPHYSICAL, vol. 121, p. 9013-9023.

- 4) Maset S. (2016). An abstract framework in the numerical solution of boundary value problems for neutral functional differential equations. *NUMERISCHE MATHEMATIK*, vol. 133, p. 525-555
- 5) Maset S. (2015). The Collocation Method in the Numerical Solution of Boundary Value Problems for Neutral Functional Differential Equations. Part I: Convergence Results. *SIAM JOURNAL ON NUMERICAL ANALYSIS*, vol. 53, p. 2771-2793.
- 6) Maset S. (2015). The Collocation Method in the Numerical Solution of Boundary Value Problems for Neutral Functional Differential Equations. Part II: Differential Equations with Deviating Arguments. *SIAM JOURNAL ON NUMERICAL ANALYSIS*, vol. 53, p. 2794-2821.
- 7) Breda D, Maset S. , Vermiglio R. (2015). Stability of Linear Delay Differential Equations. A Numerical Approach with MATLAB. *SPRINGERBRIEFS IN ELECTRICAL AND COMPUTER ENGINEERING. CONTROL, AUTOMATION AND ROBOTICS*, NEW YORK:Springer.
- 8) Maset S., Zennaro M. (2014). Good behaviour with respect to the stiffness in the numerical integration of retarded functional differential equations. *SIAM JOURNAL ON NUMERICAL ANALYSIS*, vol. 52, p. 1843-1866,
- 9) D. Breda, S. Maset, R. Vermiglio (2014). Pseudospectral methods for stability analysis of delayed dynamical systems. *INTERNATIONAL JOURNAL OF DYNAMICS AND CONTROL*, vol. 2, p. 143-153.
- 10) D. Breda, O. Diekmann, S. Maset, R. Vermiglio. (2013). A numerical approach for investigating the stability of equilibria for structured population models. *JOURNAL OF BIOLOGICAL DYNAMICS*, p. 4-20.
- 11) Maset S., Zennaro M. (2013). Stability properties of explicit exponential Runge–Kutta methods. *IMA JOURNAL OF NUMERICAL ANALYSIS*, vol. 33, p. 111-135.
- 12) Breda D., Maset S., Vermiglio R. (2012). APPROXIMATION OF EIGENVALUES OF EVOLUTION OPERATORS FOR LINEAR RETARDED FUNCTIONAL DIFFERENTIAL EQUATIONS. *SIAM JOURNAL ON NUMERICAL ANALYSIS*, vol. 50 (3), p. 1456-1483.
- 13) Breda D., Maset S., Vermiglio R. (2012). Computing the eigenvalues of Gurtin–MacCamy models with diffusion. *IMA JOURNAL OF NUMERICAL ANALYSIS*, vol. 32 (3), p. 1030-1050.
- 14) Breda D., Maset S., Vermiglio R. (2012). Numerical recipes for investigating endemic equilibria of age-structured SIR epidemics. *DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS*, p. 2675-2699.
- 15) Breda D., Maset S., Vermiglio R. (2012). Discretization of solution operators for linear time invariant - time delay systems in Hilbert spaces. In: (a cura di): Sipahi R.; Vyhřídál T.; Niculescu S.-I.; Pepe P. (Eds.), *Time Delay Systems: Methods, Applications and New Trends*. Springer.
- 16) Bohinc K., Reščič J., Maset S., May S. (2011). Debye–Hückel theory for mixtures of rigid rodlike ions and salt. *THE JOURNAL OF CHEMICAL PHYSICS*, vol. 134, 074111.
- 17) Breda D., Maset S., Vermiglio R. (2010). Computation of asymptotic stability for a class of partial differential equations with delay.. *JOURNAL OF VIBRATION AND CONTROL*, vol. vol. 16 n. 7/8, p. 1005-1022.

- 18) Breda D., Maset S., Vermiglio R. (2010). On discretizing the semigroup of solution operators for linear time invariant - time delay systems. In: Vyhlidal, Tomas, Zitek, Pavel. Time Delay Systems. IFAC, Prague, Czech Republic, June 7-9 2010.
- 19) Brunner H., Maset S. (2010). Time transformation for state-dependent delay differential equations. COMMUNICATIONS ON PURE AND APPLIED ANALYSIS, vol. vol. 9, p. 23-45.
- 20) Breda D., Maset S., Vermiglio R. (2009). An adaptive algorithm for efficient computation of level curves of surfaces. NUMERICAL ALGORITHMS, vol. 52 (4), p. 605-628.
- 21) Maset S., Rescic J, Bohinc K (2009). Attraction between like-charged surfaces induced by orientational ordering of divalent rigid rod-like counterions: theory and simulations. JOURNAL OF PHYSICS. A, MATHEMATICAL AND THEORETICAL, vol. 42, p. 105401-105415
- 22) Breda D., Maset S., Vermiglio R. (2009). Numerical approximation of characteristic values of Partial Retarded Functional Differential Equations. NUMERISCHE MATHEMATIK, vol. vol. 113, p. 181-242.
- 23) Brunner H., Maset S. (2009). Time transformation for delay differential equations. DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS, vol. 25, p. 751-776.
- 24) Maset S., Zennaro M. (2009). Unconditional stability of explicit exponential Runge-Kutta methods for semi-linear ordinary differential equations. MATHEMATICS OF COMPUTATION, vol. 78, p. 957-967.
- 25) Maset S., Zennaro M. (2009). Unconditional stability of explicit exponential Runge-Kutta methods for semi-linear ordinary differential equations. MATHEMATICS OF COMPUTATION, vol. 78, p. 957-967.
- 26) Bellen A., Maset S. (2009). Analysis of Numerical Integration for Time Delay Systems. In: Loiseau J.J., Michiels W., Niculescu S-I., Sipahi R. (Eds.). Topics in Time Delay Systems. p. 157-166, Berlin, Heidelberg:Springer-Verlag.
- 27) Bellen A., Guglielmi N., Maset S., Zennaro M. (2009). Recent trends in the numerical solution of retarded functional differential equations. In: A. Iserles (Ed.). Acta Numerica. vol. 18, p. 1-110. Cambridge University Press.
- 28) Breda D, Maset S., Vermiglio R (2009). TRACE-DDE: A Tool for Robust Analysis and Characteristic Equations for Delay Differential Equations. In: LOISEAU JJ; MICHIELS W; NICULESCU S-I; SIPAHI R.. LECTURE NOTES IN CONTROL AND INFORMATION SCIENCES Topics in Time Delay Systems Analysis, Algorithms and Control. vol. 388, p. 145-156, BERLIN HEIDELBERG: Springer-Verlag.
- 29) Bohinc K., Iglíč A., Maset S, May S. (2010). The interaction between charged macroions induced by rod-like ions. In: O. Dossel and W.C. Schlegel. IFMBE Proceedings. p. 329-331, Springer, Munich, Germany , September 7 - 12, 2009.
- 30) Breda D., Iannelli M., Maset S., Vermiglio R. (2008). Stability analysis of the Gurtin-MacCamy model. SIAM JOURNAL ON NUMERICAL ANALYSIS, vol. 46, p. 980-995.
- 31) Bohinc K, Maset S. (2007). Orientations of dipoles restricted by two oppositely charged walls. JOURNAL OF PHYSICS. A, MATHEMATICAL AND THEORETICAL, vol. 40, p. 11815-11826, ISSN: 1751-8113.

- 32) Breda D., Cusulin C., Iannelli M., Maset S., Vermiglio R. (2007). Stability analysis of age-structured population equations by pseudospectral differencing methods. *JOURNAL OF MATHEMATICAL BIOLOGY*, vol. 54/2007, p. 701-720.
- 33) Breda D., Maset S, Vermiglio R. (2006). Pseudospectral approximation of eigenvalues of derivative operators with non-local boundary conditions. *APPLIED NUMERICAL MATHEMATICS*, vol. 56, p. 318-331.
- 34) Bellan A., Brunner H, Maset S, Torelli L (2006). Superconvergence in collocation methods on quasi-graded meshes for functional differential equations with vanishing delays.. *BIT*, vol. 46, p. 229-247.
- 35) Bellen A, Guglielmi N, Maset S. (2006). Numerical methods for delay models in biomathematics. In: QUARTERONI A.; FORMAGGIA L.; VENEZIANI A.. *Complex Systems in Biomedicine*. p. 147-185, Milano:Springer
- 36) Breda D., Maset S., Vermiglio R. (2006). Numerical computation of characteristic multipliers for linear time periodic coefficients delay differential equations. In: *IFAC. Time Delay Systems*. Costanzo Manes, Pierdomenico Pepe, L'Aquila, Italy, July 10-12 2006-
- 37) Breda D., Maset S., Vermiglio R. (2005). Pseudospectral differencing methods for characteristic roots of delay differential equations. *SIAM JOURNAL ON SCIENTIFIC COMPUTING*, vol. 27, p. 482-495
- 38) Maset S., Torelli L., Vermiglio R. (2005). Runge-Kutta Methods for Retarded Functional Differential Equations. *MATHEMATICAL MODELS AND METHODS IN APPLIED SCIENCES*, vol. 15, p. 1203-1251.
- 39) D. Breda, Maset S., Vermiglio R. (2005). Efficient computation of stability charts for linear time delay systems. In: *ASME. Volume 6: 5th International Conference on Multibody Systems, Nonlinear Dynamics, and Control, Parts A, B, and C*. ASME, Long Beach, California, USA , September 24–28, 2005.
- 40) Breda D., Maset S., Vermiglio R. (2005). Pseudospectral Techniques for Stability Computation of Linear Time Delay Systems. In: *IEEE. Proceedings of the 44th IEEE Conference on Decision and Control, and the European Control Conference 2005*. IEEE, Seville, Spain, December 12-15, 2005.
- 41) Breda D., Maset S., Vermiglio R. (2004). Computing the characteristic roots for delay differential equations. *IMA JOURNAL OF NUMERICAL ANALYSIS*, vol. 24, p. 1-19.
- 42) Maset S. (2003). Numerical Solution of Retarded Functional Differential Equations as Abstract Cauchy problems. *JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS*, vol. 161, p. 259-282.
- 43) Maset S. (2002). A multigrid method of the second kind for solving linear systems of ODEs discretized by continuous Runge-Kutta methods.. *INTERNATIONAL JOURNAL OF COMPUTER MATHEMATICS*, vol. 79, p. 823-839.
- 44) Maset S. (2002). Instability of Runge-Kutta methods when applied to linear systems of delay differential equations. *NUMERISCHE MATHEMATIK*, vol. 90 no. 3, p. 555-562.

- 45) Bellen A., Maset S., Torelli L. (2000). Contractive initializing methods for the pantograph equation of neutral type.. In: Trigiante D.. Recent trends in Numerical Analysis. Advances in Computational Mathematics, vol.. 3, p. 35-41, NEW YORK:Nova Science
- 46) Bellen A., Maset S. (2000). Numerical solution of constant coefficient linear delay differential equations as abstract Cauchy problems. NUMERISCHE MATHEMATIK, vol. 84, p. 351-374.
- 47) Maset S. (2000). Stability of Runge-Kutta methods for linear delay differential equations.. NUMERISCHE MATHEMATIK, vol. 87 no. 2, p. 355-371.
- 48) Maset S. (1999). Asymptotic stability in the numerical solution of linear pure delay differential equations as abstract Cauchy problems. J. Comput. Appl. Math. 111 (1999), no. 1-2, 163—172.
- 49) Maset S., Sgarro A. (1993). An asymptotic theorem for substitution-resistant authentication codes. pp.201-206. In CISM COURSES AND LECTURES EUROCODE 92 INTERNATIONAL SYMPOSIUM ON CODING THEORY AND APPLICATIONS. SPRINGER-VERLAG.

He held thirty communications to conferences and workshops, including the following ones on invitation:

- 1) Numerical solution of delay differential equations as abstract Cauchy problems. SCICADE 99. August 9-13, 1999. Fraser island, Queensland Australia.
- 2) Numerical solution of delay differential equations as abstract Cauchy problems. ANODE99. August 16-20, 1999. Auckland.
- 3) The abstract implicit Euler method for delay differential equations. SCICADE 01. July 29-August 3, 2001. Vancouver, Canada.
- 4) Runge-Kutta methods for retarded functional differential equations. SCICADE 03. June 30-July 4, 2003. Trondheim, Norway.
- 5) Numerical computation of characteristic roots of functional equations. The Fourth China-Italy conference on Mathematical Models in Life Science: Theory and Simulation. May 31- June 2, 2005. Beijing, China.
- 6) 6) Time transformations for Delay Differential Equations. SCICADE 07. July 9-13, 2007. St. Malo, France.
- 7) Time transformations for Delay Differential Equations. Joint AARMS-CRM Workshop: Recent Advances in Functional and Delay Differential Equations. November 1-5, 2007. Halifax, Canada
- 8) Computation of characteristic roots for partial delay differential equations. Analysis and Numerics of Population dynamics and Epidemics models. December 15-17, 2008. Udine, Italy.
- 9) Numerical solution of BVPs for functional differential equations A general approach to the discretization. SDDE 09. October 12-16, 2009. Dresden, Germany.
- 10) Numerical solution of BVPs for functional differential equations. State-Dependent Delay Equations International Workshop. October 12 - 16, 2009. Max Plank Insitute, Dresden, Germany.
- 11) Mathematical modeling of like-charge attraction. 5th China-Italy Joint Conference Mathematical Models in Life Science: Theory and Simulation. 9-12 November 2009. Rome, Italy.
- 12) Stability Issues for Exponential Integrators. 7th International Congress on Industrial and Applied Mathematics. July 18 - 22, 2011. Vancouver, BC, Canada.

- 13) Solving Boundary Value Problems for Functional Differential Equations. 7th International Congress on Industrial and Applied Mathematics. July 18 - 22, 2011. Vancouver, BC, Canada.
- 14) Numerical solution of boundary value problems for neutral functional differential equations. Recent trends in delay differential equations: models, theory and numerics June 4-8, 2012. Cortona, Arezzo, Italy.
- 15) An abstract framework in the numerical solution of boundary value problems for neutral functional differential equations. Delay Equations at Fields Toronto (Canada), May 19 - 22, 2015.
- 16) Time transformations for the event location. SCICADE Potsdam (Germany), September 14 - 18, 2015.
- 17) Time-transformations for the event location in discontinuous ODEs, SIMAI 2016 Milan, September 16, 2016.
- 18) Time-transformations for the event location in discontinuous ODEs: the tangential situation. SCICADE 2017, September 14, 2017, Bath, UK.
- 19) Conditioning and relative error analysis for linear ordinary differential equations. , SIMAI 2018 Rome, July 4, 2018.

#### Periods of visting professor

Memorial University Newfoundland and Labrador's University, Canada, August 2005.

#### Grants:

- 1) Responsible for the project: "Analysis and development of numerical methodologies for certain types of nonclassical dynamical systems". Euros 6800. Funded by INDAM, 2017. 15 participants.
- 2) Responsible for the project: "Numerical Analysis of certain nonclassical types of evolution equation". Euros 5000. Funded by INDAM, 2016. 11 participants.
- 3) Individual grant 2018, Euros 3000 Funded by Research Italian Minister.

#### Organizing activities:

- 1) Organizing Committee of SCICADE 1997 held in Grado
- 2) Organizing Committee of SDIDE 2016 held in Trieste
- 3) Organizing Committee of Dobbiaco Summer School 2000-present.
- 4) Organizers with Luciano Lopez (University of Bari) of the mini symposium "Dynamical Systems with discontinuities: theory, numerical methods and applications" at the conference SIMAI 2016.
- 5) Vice-coordinator of the PhD Course in Earth Science, Fluid Dynamics, and Mathematics. Interactions and Methods (University of Trieste).