

Curriculum Vitae of Yvon Maday

Personal information

Family name, First name: Maday, Yvon

Researcher unique identifier(s): orcid.org/0000-0002-0443-6544

Date of birth: May, 20 1957

Nationality: French

CURRENT POSITION

1989 – present Professor of exceptional class, Jacques-Louis Lions Laboratory, Sorbonne Université

PREVIOUS POSITIONS

2012 – 2022 Senior member of *Institut Universitaire de France*
2004 – 2018 Visiting professor, Division of Applied Maths, Brown University, Providence RI, USA
1994 – 2000 Research Director, CNRS, ASCI Laboratory, Orsay, France
1993 – 2005 Part-time Prof. in Applied Mathematics, *Ecole Polytechnique*
1988 – 1989 Visiting Associate Prof., MIT, Cambridge, Massachusetts, USA
1987 – 1988 Visiting Associate Prof., Div. of Applied Maths, Brown University, Providence RI, USA
1981 – 1989 Associate Prof., University of Créteil (Paris 12), France
1976 – 1981 Elève Professeur, Ecole Normale Supérieure, Saint Cloud, France

EDUCATION

1986 thèse d'État, Numerical Analysis Laboratory, University Pierre and Marie Curie, France
1980 thèse 3eme cycle, Numerical Analysis Laboratory, University Pierre and Marie Curie, France
1978 Master 2 degree, Numerical Analysis Laboratory, University Pierre and Marie Curie, France
1977 Agrégation in Mathematics (ie French competitive exam for higher education teachers)
1976 Master 1 degree, Université Paris 11 Orsay

PREVIOUS ADMINISTRATIVE RESPONSABILITIES

2001 – 2012 Director of J.-L. Lions Laboratoire
1994 – 2001 Director of the maths department (UFR 921),
1999 – 2005 Director of the maths doctoral school
2015 – 2018 President of the evaluation committee at INRIA

2013 President of the « directoire » for reseach and valorisation at UPMC,
2013 – 2018 Member of the board of trustees at ICERM (Providence)
2016 – 2021 Founder and Director of the « Carnot » SMILES (a valorisation structure for maths and industry that became SUMMIT in 2021)
1996 Co-Founder of the CEMRACS (with Frederic Coquel)

RESEARCH INTERESTS

Mathematical analysis, numerical analysis, design of new numerical methods and new algorithms for solving PDE's, applications to mechanics, physics, medicine, biology, and chemistry, macro-epidemiology WBE.
Scholar H-index 81,
2022 - Research.com Mathematics in France Leader Award

FELLOWSHIPS AND AWARDS

Blaise Pascal Award (Gamni-Smai), Academy of Sciences (1991),
Member of the European Academy of Sciences (2003),
Section Lecturer at the International Congress of Mathematics (Madrid) (2006),
Jacques-Louis Lions Award, Academy of Sciences (2009),
Senior member at Institut Universitaire de France (2012 - 2017 and 2017-2022),
Feng Kang Distinguished Lecture (2016),
Atos-Joseph Fourier Award (2018),
Pioneer ICIAM Award (2019)
ERC Synergy EMC2 (2019) with Eric Cancès, Laura Grigori and Jean Philip Piquemal

SUPERVISION OF GRADUATE STUDENTS

Current Phd students:

Baptiste Loire (start September 2023, 33% supervision, with Pierre Auclair-Desrotour, Gwenaël Boué, Frederic Hecht, Jacques Laskar)

Hassan Ballout (start September 2024, supervision with CH. Prud'homme)

Recent supervisions (5 years):

Fabrice Serret (Nov 2024), Analyse d'algorithmes quantiques variationnels pour la résolution d'équations différentielles en présence de bruit quantique : application à l'équation de Gross-Pitaevskii stationnaire,

Willy Haik (Oct 17, 2024), Stratégie variationnelle hybride d'assimilation de données pour la surveillance en temps réel de systèmes dynamiques complexes

Ioanna-Maria Lygatsika (March 2024) Numerical methods for Gaussian discretizations of electronic structure problems

Trinidad Novoa (Jan 2024) Real-space descriptors: A window into the properties of hydrogen-based superconductors

Yipeng Wang (Dec 2023) A posteriori error estimation for electronic structure calculations using ab initio methods and its application to reduce calculation costs

Darryl Ondoua (Nov 2023) Modélisation mathématique des systèmes biologiques en interaction symbiotique

Gong Chen (Oct 2023) Force Fields Parameterization in Molecular Simulation by Machine Learning Methods

Philip Edel (Oct 2022) Reduced basis method for parameter-dependent linear equations. Application to time-harmonic problems in electromagnetism and in aeroacoustics

Elise Grosjean (Mars 2022) Variations and further developments on the Non-Intrusive Reduced Basis two-grid method

Etienne Polack (Janv 2022) Development of efficient multiscale methods and extrapolation techniques for multiphysics molecular chemistry

Anne-Françoise de Guerny (Avril 2021) Periodic boundary conditions and simulation of some quantities of interest for separative chemistry

Katia Ait Ameur (Nov 2020) Contributions à la simulation parallèle d'écoulements diphasiques et analyse de schémas volumes finis sur grille décalée

Past Phd students: B. Pernaud Thomas (Ingénieure, EDF), R. Munoz (University Lecturer, USC), S.M.K. Ould (MdC, SU), N. Débit (MdC, Lyon), F. Ben Belgacem (Professeur Univ Compiègne), K. Boukir (Ingénieure, EDF), J. Xu (Professeur, Xiamen), Giuseppe Coppoletta, Jean Christophe Ravel, D. Pavoni, F. Devuyt (Professeur Univ Compiègne), D. Errate (Paris), X. Louis (Paris), C. Lacourt (Montpellier), A Ben Mamoun (Paris), C. Grandmont (Paris), G. Bal (Columbia), L. Cazabeau (Paris), L. Emmel (Paris), V. Guimet (Paris), T. Boulmezaoud (Versailles), F. Magoules (Paris), F. Rapetti (Nice), G. Turinici (Paris), L. Baffico (Caen), F. Lagoutière (Paris), P. Métier (Paris), F. Legoll (Paris), J. Salomon (Paris), E. Delaveau (Potsdam), N. Poussineau (Paris), P. Guerin (Ingénieur EDF), J.-D. Garaud (Paris), R. Chakir (Paris), R. Guetat (Tunisie), N. Morcos (Post doc), G. Suarez (Professeur Colombie), A. Blasselle (Ingénieure Industrie-France), A. Franchitti (Paris), K. Riahi (post doc, New York), P. Cazeaux (Prof Minneapolis), O. Mula (Prof), J. Mullaert (chef de clinique assistant) à l'UFR de médecine de Paris 7 et Bichat pour la partie hospitalière), Geneviève Dusson (CR CNRS), Thi Hieu Luu (ingénieure Data Impact), Jean François Abadie (Professeur CPGE), Helin Gong (Prof Shanghai Jiao Tong University), Carlo Marcati (researcher at the Dipartimento di Matematica of the University of Pavia.), Nicolas Cagniard (Ingénieur), Lydie Uro (Medical Intern), Hugo Martin (post doc STEEP Project-Team)

5 key publications

- Barrault, M., Maday, Y., Nguyen, N. C., & Patera, A. T. (2004). An 'empirical interpolation' method: application to efficient reduced-basis discretization of partial differential equations. *Comptes Rendus Mathématique*, 339(9), 667-672.
- Maday, Y., & Patera, A. T. (1989). Spectral element methods for the incompressible Navier-Stokes equations. IN: State-of-the-art surveys on computational mechanics (A90-47176 21-64). New York, 71-143.
- Prud'Homme, C., Rovas, D. V., Veroy, K., Machiels, L., Maday, Y., Patera, A. T., & Turinici, G. (2002). Reliable real-time solution of parametrized partial differential equations: Reduced-basis output bound methods. *J. Fluids Eng.*, 124(1), 70-80.
- Barnett, J., Farhat, C., & Maday, Y. (2023). Neural-network-augmented projection-based model order reduction for mitigating the Kolmogorov barrier to reducibility. *Journal of Computational Physics*, 492, 112420.
- Feniou, C., Hassan, M., Traoré, D., Giner, E., Maday, Y., & Piquemal, J. P. (2023). Overlap-ADAPT-VQE: practical quantum chemistry on quantum computers via overlap-guided compact Ansätze. *Communications Physics*, 6(1), 192.