

## Curriculum vitae

**MADAY Yvon.**

**Date and place of birth :** May 20, 1957 at Saint Briec (22000) France. French nationality

**Professional address :** Laboratoire Jacques Louis Lions  
Université Pierre et Marie Curie  
Boite courrier 187, 75252, Paris Cedex 05  
Tel number : (33) 1 44 27 71 94      Fax number : (33) 1 44 27 72 00  
Email : [maday@ann.jussieu.fr](mailto:maday@ann.jussieu.fr)

**Current positions :** Full professor at Université Pierre et Marie CURIE since October 1989,  
Professor of « classe exceptionnelle » since september 2001  
Visiting Professor at Brown University since september 2003  
Consultant at ONERA

**Current responsibilities :** Director of the Laboratoire Jacques Louis Lions (2001-...)  
President of the Scientific Committee of SMAI (2007-..)

**Editor** at Annales de l'Institut Henri Poincaré (C) Non Linear Analysis, Calcolo, CAMCoS, Journal of Scientific Computing,

**Editor in chief** of MathematicS In Action

**Award :** Prix Blaise Pascal (Gamni-Smai) of the French Academy of Sciences in 1991.  
Member of the European Academy of Sciences since 2003  
Section lecturer, International Congress of Mathematicians, Madrid 2006

**About 35 former PhD students, currently 6 PhD students**

**Author of 6 books and more than 200 scientific papers**

**Former main responsibilities**

Director of the School of Doctoral Studies (1999 - 2004)  
Department Head (1994-2001)  
Director of the Scientific Council of the Math Department (2001-2004)  
Director of the Federal Institute in Maths (2005)  
(that regroups all the labs of maths in university of Paris 6 and 7, about 1000 mathematiciens)  
President of the board of deputies of the center for high computing of the ministry of research (1999-2005)  
President Smai (june 2004 - 2006)  
Initiator and director of the CEMRACS

## Rapid presentation of the scientific activity

### Numerical Analysis

#### *Spectral methods*

Culminated in 4 books :

- C. Bernardi, Y. Maday « Approximation spectrales de problèmes aux limites elliptiques » Mathématiques et Applications, Springer Verlag, Paris 1994.
- C. Bernardi, Y. Maday « Spectral Methods » Handbook of Numerical Analysis, P.G. Ciarlet et J.L. Lions eds. 1997
- C. Bernardi, M. Dauge, Y. Maday : « Spectral Methods for Axisymmetric Domains », Series in Applied Maths, Ciarlet Lions eds, Editions Scientifiques et Médicales Elsevier, Paris, 1999.
- C. Bernardi, Y. Maday, F. Rapetti : « Discrétisations variationnelles de problèmes aux limites elliptiques », Mathématiques et Applications, Springer Verlag, Paris, vol 45 (2004).

#### *The mortar element method*

- C. Bernardi; Y. Maday; A.T. Patera « A new nonconforming approach to domain decomposition: the mortar element method » in *Nonlinear Partial Differential Equations and Their Applications*, H.BREZIS and J.L. LIONS eds Pitman. 1994
- F. Bouilleau A. Buffa, Y. Maday, F. Rapetti : « The mortar edge element method in three dimensions application to magnetostatics », *SIAM J. Scient. Comp.*, **24** 4, pp. 1303-1327, 2002.

#### *A posteriori analysis of outputs reduced basis methods*

- Y. Maday : « Reduced Basis Method for the Rapid and Reliable Solution of Partial Differential Equations » Proceeding ICM Madrid

### Parallelization

#### *Domain decomposition and Parareal algorithm*

- Y. Achdou, Y. Maday, O. Widlund, « Iterative Substructuring Preconditioners for Mortar Element Methods in Two Dimensions », *SIAM J. Numer. Anal.*, Vol. 36, No. 2, 1999, 551-580
- Maday, A. T. Patera, D. Rovas : « A Reduced-Basis Output Bound Method for Noncoercive Linear Problems », in *Nonlinear partial differential equations and their applications. Collège de France Seminar*, Vol. XIV (Paris, 1997/1998), 533--569, North-Holland, Amsterdam, 2002
- Y. Maday : « The parareal in time algorithm », in *Substructuring and Domain Decomposition Methods*, F. Magoulès ed., Saxe Coburg Publications, UK, 2008

#### **Analysis of coupled problems and Problems in life sciences**

- Y. Maday : « Analysis of coupled models for fluid-structure interaction of internal flows », in *Cardiovascular Mathematics*, A. Quarteroni, L. Formaggia and A. Veneziani Eds) Springer 2009.

### Problems in quantum chemistry

- E. Cancès, M. De Franceschi, W. Kutzelnigg, C. Le Bris, Y. Maday : « Computational quantum chemistry : a primer », *Handbook of Numerical Analysis*, P.G. Ciarlet C. Le Bris eds. 2003
- E. Cancès, C. Le Bris, Y. Maday : « Méthodes mathématiques en chimie quantique - Une introduction », *Mathématiques et Applications*, Springer Verlag, Paris (2005) translation in progress