

## CATTERINA DAGNINO

### Curriculum vitae

#### EDUCATION

1971 Degree in Mathematics “cum laude”, Turin University, Italy.

#### POSITIONS HELD

1971-1973 CNR research grant at Turin University;  
1973-1983 Assistant Professor, Faculty of Sciences, Turin University;  
1983-1986 Associate Professor of Numerical Analysis, Faculty of Engineering, Turin Polytechnic;  
1986-1991 Full Professor of Numerical Analysis, Faculty of Engineering, L’Aquila University;  
1991 --- Full Professor of Numerical Analysis, Faculty of Sciences, Turin University;  
1997-1999 Member of the scientific board of PhD. Program in Computational Mathematics and Operational Research, Milan University;  
1999-- Member of the scientific board of PhD. Program in Mathematics, Turin University;  
2003-2008 Chair of "Seminario Matematico dell’ Università e del Politecnico di Torino";  
2007-2010 Vice-Head of the Department of Mathematics, Turin University.  
2011-- Head of the Department of Mathematics, Turin University.

#### TEACHING EXPERIENCES

- Courses taught at various levels (undergraduate, graduate and Ph. D.):
  - Numerical Analysis;
  - Approximation Methods;
  - Numerical Methods for Computer Graphics.
  
- Supervisor for master students and PhD. students.

#### SCIENTIFIC ACTIVITY

##### **\*\*Research Activity\*\***

- Author of more than 60 papers on Numerical Analysis topics
  
- Her researches deal with topics of Numerical Mathematics, with particular reference to:
  - Univariate and multivariate spline approximation;
  - Numerical integration with applications;
  - Numerical methods for Computer Aided Geometric Design (CAGD);
  - Numerical algorithms and mathematical software.

- Past international collaborations with Prof. Philip Rabinowitz, Weizmann Institute of Science, Rehovot (Israel)
- Recent international collaborations with:
  - Prof. Paul Sablonnière, Institut National des Sciences Appliquées (INSA) e Rennes University (France);
  - Prof. Ren-Hong Wang, Dalian University of Technology, Dalian (China);
  - Dr. Chong-Jun Li, Dalian University of Technology, Dalian (China).

**\*\* Other Scientific Activities \*\***

- Principal investigator of research teams in projects funded by: MIUR (PRIN), CNR, INDAM, Turin Polytechnic, L'Aquila University and Turin University;
- Principal investigator of a WWS-World Wide Style Project named: "Constructive Methods in Multivariate Numerical Approximation and Applications", between Turin University and Dalian University of Technology (China), funded by the Fondazione CRT of Turin, 2008;
- Member of Turin University team of "National Project Scientific Degrees" 1, 2 and 3, Mathematics, 2005---, MIUR;
- Speaker in national and international conferences;
- Referee for several international journals and reviewer for Mathematical Reviews e for Zentralblatt MATH.
- Chair of the following scientific events:
  - Lectures on Numerical Approximation, L'Aquila University, 1986-1991;
  - "International Joint Symposium on Special Functions and Artificial Intelligence", Turin University, 1993;
  - Work Shop "Splines and Radial Basis Functions", Turin University, Turin, 2003;
  - "Intensive Seminars on Numerical approximation and its Applications" Turin University, 2004;
  - "Lezioni Lagrangiane", Turin University, 2004--;
  - "International Symposium on Information and Computational Science", Dalian University of Technology, (China), 2006.
- Member of the Scientific Committee of the following scientific events:
  - International Symposium on Computing and Its Applications in Information Science" (ISCIAIS), Hefei University of Technology (China), 2005;
  - International Conference on "Recent Progress in spline and wavelet approximation", Università La Sapienza, Rome, 2006.
- Editor in chief of "Rendiconti del Seminario Matematico dell'Università e del Politecnico di Torino", 2003-2008;
- Member of the the Scientific Committee of "Rendiconti del Seminario Matematico dell'Università e del Politecnico di Torino", 2008---

### Some papers (2001-2011)

- C. Dagnino, V. Demichelis (2011) A uniformly convergent sequence of spline quadratures for Cauchy principal value integrals, *Journal of Numerical Analysis, Industrial and applied Mathematics*, to appear
- C.J. Li, C. Dagnino, V. Demichelis (2010) Finite-part integrals over polygons by an 8-node quadrilateral spline finite element *BIT Numer.Math.*50, 377–394
- C. Dagnino, S. Remogna (2010) Differentiation Based on Optimal Local Spline Quasi-Interpolants with Applications *American Institute of Physics*. Vol.: 1281, 2025 - 2028
- C. J. Li, C. Dagnino (2010) An adaptive numerical integration algorithm for polygons, *Applied Numerical Mathematics*, 60, 165-175
- C-J. Li, P. Lamberti, C. Dagnino (2009) Numerical integration over polygons by an 8-node quadrilateral spline finite element, *Journal of Computational and Applied Mathematics*, Vol. 233, 279- 292
- C. Dagnino, P. Lamberti, S. Remogna (2009) On unequally smooth bivariate quadratic spline spaces, in Editor: J. Vigo Aguiar, *Computational and Mathematical Methods in Science and Engineering 2009*, CMMSE, Gijon, 350-359
- C. Dagnino, P. Lamberti (2008) On the construction of local quadratic spline quasi-interpolants on bounded rectangular domains, *Journal of Computational and Applied Mathematics*, Vol. 221, 367- 375
- C. Dagnino, V. Demichelis (2008) Spline Quasi-Interpolants with Boundary Interpolation Properties for Cauchy Principal Value Integrals, in T. Simos, G. Psihoyias, Ch. Tsitouras, *Numerical Analysis and Applied Mathematics*, American Institute of Physics, Melville, New York, 155- 158
- C. Dagnino, V. Demichelis, P. Lamberti (2008) A nodal spline collocation method for the solution of Cauchy singular integral equations, *Journal of Numerical Analysis, Industrial and Applied Mathematics*, Vol. 3, no. 3-4, . 211- 220
- C. Dagnino, P. Lamberti (2007) Spline "quasi-interpolants" with boundary conditions on criss-cross triangulations., in A. Cohen, J. L. Merrien, L. L. Schumaker, *Curves and Surfaces Fitting*, Nashboro Press, 101-110.
- C. Dagnino, P. Lamberti, S. Remogna (2007) Quasi-interpolation based on bivariate quadratic B-splines with multiple knots, in: *PAMM Proc. Appl. Math. Mech.* ICIAM 07, Wiley-VCH
- C. Dagnino, S. Remogna (2007) Local Univariate Spline Quasi<sup>2</sup>-Interpolants with Boundary Conditions, *Journal of Information and Computational Science*, Vol. 4, 497- 504
- C. Dagnino, V. Demichelis, P. Lamberti (2006) Application of optimal nodal splines for the solution of Cauchy singular integral equations, in T.E. Simos, G. Psihoyios, C.H. Tsitouras, *Numerical Analysis and Applied Mathematics*, Wiley-VCH, Weinheim, 93- 96.
- C. Dagnino, P. Lamberti (2005) Some performances of local bivariate quadratic C<sup>1</sup> quasi-interpolating splines on non uniform type-2 triangulations, *Journal of Computational and Applied Mathematics*, Vol. 173, . 21- 37
- C. Dagnino, V. Demichelis, E. Santi (2003) A nodal spline collocation method for weakly singular Volterra integral equations, *Studia Universitatis Babes-Bolyai Mathematica*, Vol. 48(3), 71- 82
- C.Dagnino, V. Demichelis, E. Santi (2003) On optimal nodal splines and their applications, *Rendiconti Seminario Matematico Univ. Polit. Torino*, Vol. 61, 313- 332
- C. Dagnino, V. Demichelis, (2003) Computational aspects of numerical integration based on optimal nodal splines, *International Journal of Computer Mathematics*, Vol. 80, 243- 255
- C. Dagnino, V. Demichelis, (2002) Nodal spline integration rules for certain 2-D Cauchy principal value integrals, *International Journal of Computer Mathematics*, Vol. 79, 233- 246
- C. Dagnino, P. Lamberti (2001) On the approximation power of bivariate quadratic C<sup>1</sup> splines, *Journal of Computational and Applied Mathematics*, Vol. 131, 321- 332