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Short Curriculum vitae et studiorum

-Born in Rome on March 25, 1961. Married (two daughters, 12 and 15 yrs.old)
-1984, Laurea Degree in Applied Mathematics at Univ. *La Sapienza*, Rome (110 cum laude)
-1986, permanent position of Research Scientist in "Mathematical differential modelling and numerical solution" at Istituto per le Applicazioni del Calcolo (I.A.C.), Council for National Research (C.N.R.), Rome (by open national competition)
-1987-1989, two year appointment as Research Assistant at Dept. Mathematics and Statistics and Dept. Mechanical Engineering, Univ. of Pittsburgh, Pennsylvania (USA), partially supported also by a C.N.R. fellowship (by national competition). Under the advisory of Prof. K. R. Rajagopal, she has specialized in the study of *non-linear problems in mechanics* and has taught math courses for Batchelor and Master degrees
-1990-2003, temporary appointments for teaching Numerical Analysis and Mathematical Differential Modelling courses for Laurea degree programs in Mathematics, Chemistry and Engineering at several Italian universities (L'Aquila, *La Sapienza*, *Tor Vergata* and *Roma Tre,* Rome)
- 1997, permanent position of Senior Scientist at I.A.C.-C.N.R., Rome (by open national competition)
- 2006, permanent position of Director of Research at I.A.C.-C.N.R., Rome (by CNR national competition)
- from April 2009, elected member of I.A.C. Institute Scientific Committee (with consultant role towards of the director of the institute).

Research work
Her research work deals with mathematical models and numerical methods for numerical simulation aimed at problem solving in fluid dynamics, material science, cultural heritage, planetology and environmental sciences.
The mathematical models approached are listed:
- Navier-Stokes equations for unsteady, incompressible, non-isothermal fluids (DNS, stability analysis and dynamical systems)
- potential flows
- equations for incompressible non-newtonian fluids
- liquid/solid phase transition models with melt convection and solid deformation
- convection/diffusion equations for ionic chemical species
- bio-fluid dynamics for the plankton ecosystem.

The numerical methodologies experienced are the following:
- finite differences and finite volumes methods
- spectral and B-spline polynomial approximation methods
- domain decomposition technique
- front-fixing technique for moving boundary problems
- regular and singular perturbation methods.

She has developed her research work within Italian national research programs (Progetti Strategici, Progetti Finalizzati) funded by the National Research Council, within Italian regional research programs (Regione Autonoma Valle d'Aosta) and Italian Space Agency (ASI) research calls, either as a partecipant and as P.I. or coordinator.
She is author of numerous papers on peer-reviewed international journals or volumes and of several technical reports (listed below).
She has been invited speaker in several universities and within conference programs.
She has been advisor of young researchers and of students for their Laurea degree thesis.
She has organized inter-disciplinary international workshops on her research topics.
She has solicited in her Institute the research interest on mathematical and numerical modelling of non-newtonian fluids and liquid/solid phase transition processes.
She is reviewer for Int. Jour. of Nonlinear Mechanics, Meccanica, Int. Jour. for Numerical Methods in Fluids, Computer Methods in Applied Mechanics and Engineering and Jour. Computational and Applied Mathematics.

Principal papers in International (peer-reviewed) Journals or Books

U. Bulgarelli, G. Graziani, D. Mansutti and R. Piva A reduced implicit scheme, via discrete stream function generation, for unsteady Navier-Stokes equations in general curvilinear coordinates, Notes on Numerical Fluid Mechanics, vol.13, D. Rues, W. Kordulla (eds.), 31-39, F. Vieweg and son, Braunschweig/ Weisbaden, 1985.

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D. Mansutti and F. Pitolli Simulation of a 3D Navier-Stokes flows via domain decomposition by the modified discrete vector potential model, Contemporary Mathematics n.157, Domain Decomposition Methods in Science and Engrng., A. Quarteroni (ed.), 477 - 482, American Mathematical Society, Providence, RI, 1994.

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D. Funaro, M. Giangi and D. Mansutti A splitting method for unsteady incompressible viscous fluids imposing no boundary conditions to pressure, Jour. Scientific Computing, vol. 13, 1, 95 - 104, Plenum, New York, 1998.

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A. Georgescu and D. Mansutti Coincidence of the linear and nonlinear stability bounds in a horizontal thermal convection problem, Int. Jour. Non-linear Mech., vol. 34, 4, 603 - 613, Pergamon, Oxford, 1999.

M. Giangi, D. Mansutti and G. Richelli Steady 3D flow configurations for the horizontal thermal convection with thermocapillary effects, Jour. Scientific Computing, vol. 14, 2, 179 - 195, Plenum, New York, 1999.

G. De Fabritiis, A. Mancini, D. Mansutti and S. Succi Mesoscopic models of liquid/solid phase transitions, Int. Jour. Modern Physics C, vol. 9, 8, 1405 - 1415, World Scient. Publishing, Singapore, 1998.

E. Bucchignani and D. Mansutti Horizontal thermal convection in a shallow cavity: oscillatory regimes and transition to chaos, Int. Jour. Numerical Methods for Heat and Fluid Flow, vol. 10, 2, 179 - 195, MCB University Press, Bradford, 2000.

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W. Miller, S. Succi and D. Mansutti A lattice Boltzmann model for anisotropic liquid/solid phase transitions, Physical Review Letters, vol. 86, 16, 3578 - 3581, American Physical Society, Ridge, 2001.

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E. Bucchignani and D. Mansutti Horizontal thermocapillary convection of SCN: Steady state, instabilities and transition to chaos, Physical Review E, vol. 69, 056319, American Physical Society, Ridge, 2004.

V. Botte and D. Mansutti Effects of the Marangoni stress due to plankton slicks on the plankton population dynamics in presence of thermal bar, Journal of Marine Systems,57, 55 - 69, Elsevier, Amsterdam, 2005.

M. M. Cerimele, D. Mansutti and F. Pistella Horizontal solidification of average and low Prandtl fluids in microgravity, Applied Numerical Mathematics, 56, 5, 682 - 694, Elsevier Science, The Nederlands, 2006.

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Technical Reports

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D. Mansutti Towards the numerical simulation of appearance and evolution of subglacial basins, I.A.C. Reports n. 99 (11/2006).
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(Rome, July 21, 2010)