Andrea Di Mascio

Curriculum Vitae et Studiorum

Date and place of birth	25th March 1961, Rome, Italy
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Education and qualifications

1987 Master degree in Aeronautical Engineering – University of Rome "Sapienza" - Italy
Score: 110/110 cum laude

1987 Granted of the Engineering Licence by Professional Practice Examination.

1992 Ph.D. in "Theoretical and Applied Mechanics" – University of Rome "Sapienza" - Italy

2003 Granted by National Examination as Research Director at INSEAN[1] - Rome - Italy

2014 Granted by ANVUR[2]of the National Scientific Qualification as Full Professor of Aeronautical, Aerospace and Naval Engineering *(SC: 09/A1)*

Professional history

1987-1988 SNIA-BPD - FIAT Group (Present company name: Avio S.p.A.[3]) - Italy
Researcher at the Research and Development Unit
Research activity: Algorithms for the simulation of high-temperature high-speed compressible flows in solid-propeller engines. Combustion.

1989-1991 University of Rome "Sapienza" – Italy
Ph.D. Student in "Theoretical and Applied Mechanics"
Research activity: numerical simulation of transonic flows, high order non-oscillatory schemes, shock-induced separation, flow instabilities.

1 Istituto Nazionale per Studi ed Esperienze di Architettura Navale
2 the Italian National Agency for the Evaluation of Universities and Research Institutes
3 http://www.avio.com/ - Colleferro (RM) - Italy

1991-2011 INSEAN - Rome - Italy

Researcher - From 1997: Senior Researcher

Research activity: numerical algorithms for the simulation of free surface potential and viscous flows, zonal approach for high Reynolds number flows, multi-grid algorithms, multi-block algorithms, turbulence modelling, geophysical flows, two-phase flows, level set techniques, wave breaking modelling, dynamic overset grids, aeroacoustics, seakeeping, manoeuvrability, parallel computing.

2011-Present IAC-CNR[4] - Roma

Senior Researcher

Research activity: Wave breaking with high fragmentation. Flows around marine propellers and wind turbines. Particle methods. Zonal-approach and Domain-Decomposition approaches. Transonic and supersonic flows.

Responsibility of groups and structures

1998-1999 at INSEAN - Rome – Italy

In charge of the Working Unit "Computational methods for Hydrodynamics" within the INSEAN Research Program 1997-99

2000-2002 at INSEAN - Rome – Italy

In charge of the Research Area n.5 Group within the INSEAN Research Program 2000-02

2001-2003 at INSEAN - Rome – Italy

Head of the Division "Numerical Hydrodynamics"

2004-2011 at INSEAN - Rome – Italy

Head of the Scientific Unit "Mathematical Modelling and Computational Methods for Turbulent Flows"

4 Istituto per le Applicazioni del Calcolo - Consiglio Nazionale delle Ricerche

Responsibilities of research projects

1. **Wave breaking dynamics**

Role	Principal Investigator
Source of Funding	Office of Naval Research of the US Navy
Total Amount	1,8M US$
Research Unit Funding	0,9M US$
Period of Activity	01/01/2000 to 31/12/2002

Partners

a) Iowa Institute of Hydraulic Research - The University of Iowa, USA.
b) INSEAN, Italy.

Goals

a) Development of numerical models for wave breaking simulation.
b) Data collection from towing tank measurements to be use for code validation.

Activity

a) Development and implementation of numerical models for wave breaking simulation.
b) Wave breaking simulation above submerged profiles advancing at constant speed.
c) Wave breaking simulation around the bow of ship moving at constant seed in calm water.
d) Uncertainty assessment (verification) and validation of all numerical simulations.
e) Experimental measurement in towing tank of velocity fields, wave patterns and wave profiles.

Results

a) Computational code for the simulation of high Reynolds number flows with a free surface, with and without breaking waves, around complex geometries.
b) Experimental database for code validation, to be used for turbulent free surface flows simulations.

2. **Optimization of methodologies for manoeuvring prediction of military vessels.**

Role	Principal Investigator
Source of Funding	Italian Ministry of Defence
Total Amount	150k Euros
Research Unit Funding	50k Euros

Period of Activity 15/04/2008 to 14/04/2009

Partners

a) Centro di Tecnica Navale (CETENA) - Italy
b) FINCANTIERI - Italy
c) Università degli Studi di Genova - Italy.
d) INSEAN – Italy.

Goals

a) Development of methods for the predictions of the characteristic coefficients for fully appended and self-propelled military hulls.
b) Development of simulation techniques for typical manoeuvres of military vessels.

Activity

a) Development and implementation of computer codes for the solution of the Reynolds averaged Navier-Stokes equations with a free surface, in domains with complex time-varying boundaries.
b) Development and implementation of discretization techniques using block structured grids with partial overlapping; efficient techniques for mesh topology calculation.
c) Development and implementation of computational methods for the evaluation of static and dynamic stability derivatives for manoeuvring hulls.

Results

d) Simulation of the flow around military hulls with appendages and propellers; computation of the forces acting on the hull and the appendages.
e) Prediction of the static and dynamic stability derivatives by means of system identification techniques based on the Fourier analysis of the obtained results.
f) Simulation of hull manoeuvring characteristics in typical operative conditions by means of system based methods.

3. Numerical investigation of the “New Heavy Torpedo” launch from submarine U212

Role	Principal Investigator
Source of Funding	Whitehead Alenia Sistemi Subacquei – Livorno - Italy
Total Amount	140k Euros
Research Unit Funding	140k Euros
Period of Activity	11/03/2010 to 28/06/2011

Partners

a) Whitehead-Alenia Sistemi Subacquei (Livorno)
b) INSEAN

Goals

a) Development of a computational code, based on the coupled solution of the Reynolds averaged Navier-Stokes equation and the multiple rigid body

motion equations, for the simulation of torpedo launch from manoeuvring submarines.

b) Simulation of critical operative conditions.

Activity

a) Development and implementation of numerical techniques based on ALE (Arbitrary Lagrangian-Eulerian) formulation of RANSE, for the simulation of flows around multiple rigid bodies in relative motion.

b) Development and implementation of efficient numerical techniques for the computation of grid topology for block structured meshes with partial overlapping.

c) Development and implementation of algorithms able to mimic rigid motion of multiple bodies partially constrained.

Results

a) Computational codes for the simulation of torpedo ejection by high pressure water jet in the launching.

b) Simulation of critical operative situations (e.g. propeller loss) and comparison with results from full-scale tests.

4. Flagship project RITMARE – Subproject 1: Marine Technologies - WP2-AZ2UO13: Reduction of CO_2 emission

Role	Principal Investigator
Source of Funding	Italian Ministry of University and Research
Total Amount	250M Euros
Research Unit Funding	41k Euros
Period of Activity	01/01/2012 to 31/12/2016

Partners

a) IAC.

b) Other research institutes of CNR

Goals

Development of algorithms for the simulation of breaking waves with high front fragmentation

Activity

a) Investigation of wave breaking simulation techniques based on Eulerian and Lagrangian models.

b) Analysis and development of inhomogeneous domain decomposition techniques for free surface flows.

c) Development and implementation of coupling algorithms between inhomogeneous numerical solvers.

Results

a) Implementation of computational codes based on the interaction of Eulerian Algorithms (Finite Volume methods) with Lagrangian methods (Smoothed Particle Hydrodynamics) for the simulation of breaking waves with front fragmentation.
b) Verification and validations of the results for both reference test cases and practical engineering problems

Participation to research projects

1. SONORE - SOnar Dome Self NOise REduction

Source of Funding	Italian Ministry of Defence
Total Amount	1,3M Euro
Principal Investigator	Elena Ciappi
Period of activity	12/05/2007 to 11/05/2010
Partners	Italian Navy, INSEAN
Goals	Development of computational techniques for hydrodynamic noise.
Activity	Numerical simulation of the boundary layer flow on ship hull.
Results	Prediction models for self-induced noise on the bulbs of military ship hull

2. MOBIPROP “Simulation of high Reynolds number flows around ship hulls with appendages and propellers.”

Source of Funding	Italian Ministry of Defence
Total Amount	500k Euro
Principal Investigator	Roberto Muscari
Period of activity	16/02/2006 to 15/02/2009
Partners	Italian Navy, INSEAN
Goals	Development of simulation techniques for the flow around ship hulls with appendages and propellers.
Activity	Numerical simulation of the flow around fully appended hulls.
Results	Development and implementation of numerical techniques for the simulation of the flow around time depended complex geometries.

3. SUPERPROP - SUPERior life-time operation economy of ship PROPellers

Source of Funding	EU-FP6 - Transports
Total Amount	1M Euros
Principal Investigator	Francesco Salvatore
Period of activity	01/05/2005 to 30/04/2008
Partners	Universidad Politecnica de Madrid, Technical Research Centre of Finland (VTT), SISTEMAR S.A., Norwegian Marine Technology Research Institue (MARINTEK), OceanS.r.l., Pescanova S.A., Construcciones Navales Paulino Freire S.A., Fundiciones Portuguesas Limitada, INSEAN
Goals	Development and implementation of design tools to extend operating life of ship.
Activity	Development of algorithms to couple Boundary Element Method for simplified simulation of propellers and Reynold averaged Navier-Stokes solvers for the simulation of the bulk flow.
Results	Efficient methods for propeller design.

4. EUCLID CEPA 10 RTP 10.17 “Submarine Motions in Confined Waters”

Source of Funding	European Defence Agency (EDA) B0046 (ex EUCLID RTP10.17)
Total Amount	2,k Euros
Principal Investigator	Marilena Greco
Period of activity	18/11/2003 to 17/11/2007
Partners	QinetiQ Ltd, UK; Bassin d’Essais des Carenes, Francia; Norsk Marinteknisk Forskningsinstitutt (MARINTEK), Norvegia, INSEAN (Italia)
Goals	Prediction methods of the hydrodynamic characteristics for submarines manoeuvring in confined waters.
Activity	Numerical simulation of the flow around manoeuvring submarines.
Results	Computational codes for manoeuvrability prediction of submarine operating close to obstacles.

5. VITAS-OR4 “Aeroacoustics and wake interference assessment in noise prediction for the aircraft Piaggio P180 *Avanti*”

Source of Funding	Piaggio Aero Industries SpA
Total Amount	71k Euros
Principal Investigator	Enrico De Bernardis
Period of activity	15/11/2003 to 15/07/2004
Partners	Piaggio Aero Industries SpA, Italy; INSEAN
Goals	Aeroacustic study of the propeller of the aircraft Piaggio P180.
Activity	Numerical simulation of the flow around the airplane in realistic flight configuration.
Results	Prediction of the noise radiated from the propeller system and propeller optimization.

6. 6DOF-RANSE RP “Sviluppo di un codice di calcolo per la previsione del comportamento delle navi in condizione di mare grosso”

Source of Funding	Italian Ministry of Defence
Total Amount	2,1M Euros
Principal Investigator	Claudio Lugni
Period of activity	16/05/2001 to 29/04/2004
Partners	David Taylor Model Basin (ONR) USA. IIHR Iowa University, USA. INSEAN, Italia.
Goals	Computational models for the simulation of the ship motion with six degree of freedom in wavy sea.
Activity	Development of Reynold Averaged Navier-Stokes solvers for the simulation of the free surface flows around complex geometries.
Results	Algorithms for the simulation of flows around ship hull.

7. SEABUS-HYDAER “Wing assisted hydrofoil enabling technologies, hydrodynamics and aerodynamics”

Source of Funding	European Community
Total Amount	5,2M Euros
Principal Investigator	Enrico De Bernardis
Period of activity	01/01/1998 to 31/12/2000
Partners	Intermarine (IT), Kamewa (SE), Gamesa (ES), Thalassa (GR), Alenia (IT), Cap Gemini (FR), Supramar (CH), Uni. Saragoza (ES), Germanische Lloyds (DE), Goldenport (GR), NRL (NL), INSEAN(IT)

Goals	Development of a marine vehicle “Wing in Ground (WIG)” by means of numerical and experimental activity.
Activity	Development of algorithms and computer codes. Simulation of realistic flow conditions.
Results	Computer code for the simulation of the flow inside the intake of waterjets.

8. EUCLID CEPA RTP 10.12: “Viscous incompressible flow at high Reynolds number”

Source of Funding	Western European Union Organization
Total Amount	1,7M Euros
Principal Investigator	Daniele Ranocchia
Period di Activity	01/07/1997 to 30/10/2002
Partners	Qinetiq (UK), DGA (Fr), Marin (NL), INSEAN (IT)
Goals	Verification and validation of Reynolds averaged Navier-Stokes solvers for the computation of the flow around fully appended and propelled hulls.
Activity	Development of high Reynolds number flow solvers on block-structured meshes.
Results	Verification and validation of numerical simulations by comparison with experimental measurements.

Consultancy activity

Consultant for the University of Roma “Sapienza” – Department of Mechanical and Aeronautical Engineering.

Period 30/11/2014 to 30/05/2015

Amount 30k Euro

Contract ESA-ESRIN/DIMA “Support and Cross Check Activities of VEGA and VECEP Solid Propulsion” (ESA Contract N0. 4000101871/10/1/JD CCN1). Principal investigator: prof. Marcello Onofri

Partners University of Roma “Sapienza”. European Space Agency (ESA).

Activity

a) Grid generation and Eulerian compressible flow simulation in typical geometries of solid rocket motors.

b) Simulation of flow instabilities of different operating conditions.

Teaching and tutorship

- **Courses taught**

  Level: Second level Master in “Space Transportation Systems”

  University: University of Roma “Sapienza” - Italy

  Period: 2005-present

  Course title: CFD methods for high-speed flows

- **Co-tutor of the following master and Ph.D. Thesis:**

1. Giulio Dubbioso, “Applicazione di metodologie di identificazione dei coefficienti idrodinamici a simulazioni effettuate mediante codici CFD e a risultati di prove sperimentali su modello libero”, aa. 2009–2010, *Università degli Studi di Genova - Facoltà di Ingegneria.*
2. Guillaume Baty, “Numerical simulation of two-phase flows”, aa. 2008–2009 *Institut de Mécanique de Marseille, Université de la Méditerranée (Aix-Marseille II), Marseille, France.*
3. Massimo Scantamburlo, “Simulazione numerica di flussi ipersonici viscosi su corpi assialsimmetrici”, aa. 1993-1994, *Dipartimento di Meccanica ed Aeronautica - Università degli Studi di Roma “La Sapienza”*.
4. David Lambert, “Simulazione numerica di flussi Euleriani a simmetria conica”, aa. 1993-1994, *Dipartimento di Meccanica ed Aeronautica - Università degli Studi di Roma “La Sapienza”*.
5. Riccardo Broglia, “Metodi Multigrid per flussi compressibili non viscosi bidimensionali”, aa. 1993-1994, *Dipartimento di Meccanica ed Aeronautica - Università degli Studi di Roma “La Sapienza”*.
6. Enzo Vardanega, “Schemi alla Godunov al I e al II ordine per l’integrazione numerica delle equazioni di Eulero” aa. 1991-1992, *Dipartimento di Meccanica ed Aeronautica - Università degli Studi di Roma “La Sapienza”*.
7. Marco Capoccia, “Interazione urto-Strato limite”, aa. 1991-1992, *Dipartimento di Meccanica ed Aeronautica - Università degli Studi di Roma “La Sapienza”*.

Participation to editorial boards and scientific committees.

1. 2005- present: in the editorial board of "*Journal of Marine Science and Technology*"
2. 01/01/2009 to 30/09/2011: in the *Scientific Advisory Board* at *CASPUR* (Consorzio interuniversitario per le Applicazioni di Supercalcolo per Università e Ricerca).

Review activity

1. Scientific reviewer for PRACE[5] (Brussels, Belgium) for project assessment and computing resources assignment, in the framework of the 16th Call of proposals for PRACE Project Access Call 16 – 2018

2. Peer reviewer of the following scientific journals:

   - Journal of Fluid Mechanics
   - Computers and Fluids
   - Communications in Computational Physics
   - Journal of Fluid Engineering
   - Ocean Engineering
   - European Journal of Mechanics – B/Fluids
   - Journal of Ship Research
   - International Journal for Numerical Methods in Fluids
   - Journal of Marine Science and Technology
   - International Journal of Numerical Methods for Heat and Fluid Flow
   - Applied Ocean Research
   - Communications in Applied and Industrial Mathematics
   - Engineering Applications of Computational Fluid Mechanics
   - Advances in Mechanical Engineering
   - Journal of Aerodynamics
   - Shock and Vibration
   - Marine Technology Society Journal
   - Journal of Coastal Research
   - Applied Mathematics and Computation
   - Mathematics and Computers in Simulation
   - Progress in Computational Fluid Dynamics, An International Journal (PCFD)
   - Mathematical Problems in Engineering

5 Partnership for Advanced Computing in Europe

Invited lectures - keynotes

Invited lectures at Universities and Research Institutes

1. Dipartimento di Matematica - Sapienza Università di Roma – Italy “Simulation of free surface flows by coupled Lagrangian/Eulerian methods” - 2016
2. Ecole Centrale de Nantes - Fluid Mechanics Laboratory - France: “Simulation of the flow in the wake of marine propellers” - 2013
3. ENEA (Ente Nazionale Energie Alternative) - Italy: “Simulation of turbulent flows in complex geometries” - 2012
4. University of Trieste - Faculty of Mechanical and Naval Engineering - Italy: “CFD applications to Naval Architecture” - 2011
5. Department of Naval Architecture and Marine Engineering - College of Engineering - University of Michigan (MI), USA: “Research on CFD at INSEAN” - 2009
6. ENEA (Ente Nazionale Energie Alternative) - Italy: “Simulation of unsteady flows by dynamic overlapping grids” - 2007
7. Polytechnic University of Milan - Italy: “Application of Level-Set Techniques to the Simulation of Free Surface Flows” - 2001
8. University of Trieste - Faculty of Mechanical and Naval Engineering - Italy: “Numerical Simulation of Free Surface Flows” – 1996

Invited lectures and Keynotes in International Conferences

1. F. Magionesi, E. Ciappi, R. Camussi, T. Pagliaroli, A. Di Mascio, B. Imperatore, A. Marino, “Measurement and modelling of turbulent boundary layer excitation for naval and aeronautical applications”, Keynote lecture at NOVEM 2012 - Noise and Vibrations: Emerging Methods, Sorrento (Italy), 1-4 April 2012
2. A. Di Mascio, “Numerical simulation of free surface flows around ship hulls”, Invited lecture at Free Surface Flows: Numerical Methodologies and Application to Naval Architecture, SISSA International School for Advanced Studies, Trieste (Italy) , February 23–24, 2012
3. A. Di Mascio, “ Application of overset composite grids to ship maneuvering and seakeeping problems”, Keynote lecture at 9th Symposium on Overset Composite Grid and Solution Technology, The Pennsylvania State University, State College, Pennsylvania, October 14–16, 2008
4. A. Di Mascio, “Numerical simulation of flows around ship hulls by high-order Godunov type methods”, Invited lecture at CFD Solvers for unsteady marine applications: capabilities and challenges, Trondheim (Norway), 13-14 December 2007
5. A. Di Mascio, “Application of numerical fluid dynamics to the simulation of flows around ship hulls”, Invited lecture at Journée Franco-Italienne de coopération et de recherche scientifique - La recherche en ingénierie par l’example - Marseille (France) 19 Octobre 2007
6. P. Bull, J.B. Verkuyl, D. Ranocchia, A. Di Mascio, L. Merle, S. Cordier, “Prediction of high Reynolds number flows around naval vessels”, Keynote lecture at 24th Symposium on Naval Hydrodynamics, Fukuoka (Japan), July 2002

Publications

A – On scientific journals:

1. L. Chiron, S. Marrone, A. Di Mascio, D. Le Touzé, “Coupled SPH–FV method with net vorticity and mass transfer”, J*ournal of Computational Physics* (2018), 364, pp. 111-136

2. R. Muscari, G. Dubbioso, F. Ortolani, A. Di Mascio, “CFD analysis of the sensitivity of propeller bearing loads to stern appendages and propulsive configurations”, *Applied Ocean Research* (2017), 69, pp. 205–219

3. R. Muscari, G. Dubbioso, F. Ortolani, A. Di Mascio, “Analysis of propeller bearing loads by CFD. Part II: Transient maneuvers”, *Ocean Engineering* (2017), 146, pp. 217–233

4. R. Muscari, G. Dubbioso, M. Viviani, A. Di Mascio, “Analysis of the asymmetric behavior of propeller–rudder system of twin screw ships by CFD”, *Ocean Engineering* (2017), 143, pp. 269–281

5. A. Di Mascio, M. Antuono, A. Colagrossi, S. Marrone S, “Smoothed particle hydrodynamics method from a large eddy simulation perspective”, *Physics of Fluids* (2017), vol. 29, n.035102

6. R. Muscari, G. Dubbioso, A. Di Mascio, “Analysis of the flow-field around a rudder in the wake of a simplified marine propeller”, *Journal of Fluid Mechanics* (2017), vol. 814, pp. 547-569

7. G. Dubbioso, R. Muscari, F. Ortolani, A. Di Mascio, “Analysis of propeller bearing loads by CFD. Part I: Straight ahead and steady turning maneuvers”, *Ocean Engineering* (2017), 130, pp. 241-259

8. F. Magionesi, A. Di Mascio, “Investigation and modelling of the turbulent wall pressure fluctuations on the bulbous bow of a ship”, *Journal of Fluids and Structures*, (2016), 67, pp.219-240

9. S. Marrone, A. Colagrossi, A. Di Mascio, D. Le Touzé, “Analysis of free-surface flows through energy considerations: Single-phase versus two-phase modeling”, *Physical Review E* (2016), 93 (5), 053113

10. S. Zaghi, A. Di Mascio, B. Favini, “Application of WENO-Positivity-Preserving Schemes to Highly Under-Expanded Jets”, *Journal of Scientific Computing* (2016), 28 May 2016

11. S. Zaghi, R. Muscari, A. Di Mascio, “Assessment of blockage effects in wind tunnel testing of wind turbines”, *Journal of Wind Engineering and Industrial Aerodynamics* (2016), 154, pp. 1-9

12. G. Dubbioso, D. Durante, A. Di Mascio, R. Broglia, “Turning ability analysis of a fully appended twin screw vessel by CFD. Part II: Single vs. twin rudder configuration”, *Ocean Engineering* (2016), 117, pp. 259-271

13. S. Marrone, A. Di Mascio, D. Le Touzé, “Coupling of Smoothed Particle Hydrodynamics with Finite Volume Method for Free-surface Flows”, *Journal of Computational Physics* (2016), 310, pp. 161-180

14. R. Broglia, G. Dubbioso, D. Durante, A. Di Mascio, “Turning ability analysis of a fully appended twin screw vessel by CFD. Part I: Single rudder configuration ”, *Ocean Engineering*, (2015) Vol. 105, pp. 275-286

15. S. Zaghi, A. Di Mascio, R. Broglia, R. Muscari, “Application of dynamic overlapping grids to the simulation of the flow around a fully-appended submarine”. *Mathematics and Computers in Simulation*, (2015) vol. 116, pp. 75-88

16. S. Marrone, A. Colagrossi, A. Di Mascio, D. Le Touzé, “Prediction of energy losses in water impacts using incompressible and weakly-compressible models”, *Journal of Fluids and Structures*, (2015) vol. 54, pp. 802-822

17. L. Greco, R. Muscari, C. Testa, A. Di Mascio, “Marine Propellers Performance and Flow-Field Features Prediction by a Free-Wake Panel Method”, *Journal of Hydrodynamics*,(2014), 26(5), pp. 780-795

18. D. Durante, R. Broglia, K. Maki, A. Di Mascio, “A Study on the Effect of the Cushion Pressure on a Planning Surface”, *Ocean Engineering*, (2014), Vol. 91, pp. 122-132

19. A. Di Mascio, R. Muscari, G. Dubbioso, “On the wake dynamics of a propeller operating in drift”, *Journal of Fluid Mechanics*, (2014), vol.754, pp. 263-307

20. S. Ianniello, R. Muscari, A. Di Mascio “Ship underwater noise assessment by the acoustic analogy. Part III: measurements versus numerical predictions on a full-scale ship”, *Journal of Marine Science and Technology*, (2014), Vol. 19, pp. 125-142

21. G. Dubbioso, R. Muscari, A. Di Mascio, “Analysis of the Performances of a Marine Propeller operating in Oblique Flow. Part 2: Very high incidence angles”, *Computers and Fluids*, (2014) Vol. 92, 20, pp. 56-81

22. S. Ianniello, R. Muscari, A. Di Mascio “Ship underwater noise assessment by the acoustic analogy. Part II: hydroacoustic analysis of a ship scaled model” *Journal of Marine Science and Technology*, (2014), Vol. 19, Issue 1, 52-74

23. S. Ianniello, R. Muscari, A. Di Mascio “Ship underwater noise assessment by the acoustic analogy. Part I: nonlinear analysis of a marine propeller in a uniform flow”, *Journal of Marine Science and Technology*, (2013), Vol. 18, Issue 4, pp. 547-570

24. G. Dubbioso, R. Muscari, A. Di Mascio “Analysis of the Performances of a Marine Propeller operating in Oblique Flow”, *Computers and Fluids*, (2013) 75, pp. 86-102

25. R. Muscari, A. Di Mascio, R. Verzicco, “Modeling of vortex dynamics in the wake of a marine propeller”, *Computers and Fluids*, (2013) vol. 73, pp.65-79

26. K. Maki, R. Broglia, L. Doctors, A. Di Mascio, “Numerical investigation of the components of calm-water resistance of a surface-effects hip”, *Ocean Engineering*, (2013), Vol.72, pp.375–385

27. G. Pontrelli, A. Di Mascio a, F. de Monte, " Local mass non-equilibrium dynamics in multi-layered porous media: application to the drug-eluting stent", *International Journal of Heat and Mass Transfer*, (2013), Vol.66, pp.844–854

28. R. Broglia, G. Dubbioso, D. Durante, A. Di Mascio, "Simulation of turning circle by CFD: Analysis of different propeller models and their effect on maneuvering prediction", *Applied Ocean Research*, (2013) Vol. 39, pp.1-10

29. K.Maki, R. Broglia, L. Doctors, A. Di Mascio, "Nonlinear Wave Resistance of a Two dimensional Pressure Patch Moving on a Free Surface", *Ocean Engineering*, (2012) Vol.39, pp.62–71

30. A. Bonfiglioli, R. Paciorri, A. Di Mascio, "The role of mesh generation, adaptation and refinement on the computation of flows featuring strong shocks", *Modelling and Simulation in Engineering*, (2012) Article ID 631276

31. R. Broglia, S. Zaghi, A. Di Mascio, "Numerical Simulation of Interference Effects for a High Speed Catamaran", *Journal of Marine Science and Technology*, (2011) Vol. 16, pp. 254–269

32. S. Zaghi, R. Broglia, A. Di Mascio, "Analysis of the Interference Effects for High-Speed Catamarans by Model Tests and Numerical Simulations", *Ocean Engineering*, (2011) Vol. 38, pp.2110–2122

33. [*]A. Di Mascio, G. Dubbioso, C. Notaro, M. Viviani, "Investigation of Twin Screw Naval Ships Manoeuvrability Behaviour", *Journal of Ship Research*, (2011) Vol. 55, n.4, pp.221-248

34. R. Muscari, M. Felli, A. Di Mascio, "Analysis of the flow past a fully appended hull with propellers by CFD and EFD", *Journal of Fluid Engineering*, (2011) Vol. 133, 6

35. S. Ianniello, A. Di Mascio, "A Self–Adaptive Oriented Particles Level–Set Method for Tracking Interfaces", *Journal of Computational Physics*, (2010) Vol. 229 pp. 1353–1380

36. S. Zaghi, R. Broglia, A. Di Mascio, "Experimental and numerical investigations on fast catamarans interference effects", *Journal of Hydrodynamics*, (2010) 22(5), supplement:545549

37. A. Di Mascio, R. Broglia, R. Muscari, "Prediction of hydrodynamic coefficients of ship hulls by high order Godunov-type methods", *Journal of Marine Science and Technology*, (2009), Vol. 14, n.1, pp. 19-29

38. R. Muscari, R. Broglia, A. Di Mascio, "Numerical simulation of the flow around an array of free-surface piercing cylinders in waves", *Ship Technology Research*, (2007) vol.54, n.1, pag.43-52

* Paper chosen by SNAME as "significant paper 2011" and re-published on *Transaction of the Society of Naval Architects and Marine Engineers*, 2012, Vol. 120

39. R. Broglia, A. Di Mascio, R. Muscari, “Numerical study of confined water effects on a self-propelled submarine in steady manoeuvres”, *International Journal of Offshore and Polar Engineering*, (2007) Vol. 17, n. 2, pp. 89-96

40. A. Di Mascio, R. Broglia, R. Muscari, “On the application of the single-phase level set method to naval hydrodynamic flows”, *Computers and Fluids*, (2007) Vol.36, pp. 868863

41. R. Paciorri, A. Bonfiglioli, A. Di Mascio, B. Favini, “RANS Simulations of a Junction Flow”, *International Journal of Computational Fluid Dynamics*, (2005) Vol. 19, n. 2, pp. 179-189

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