Curriculum Vitae
Emilio F. CAMPANA

Name, place and date of birth

Emilio Fortunato CAMPANA
Rome – Italy, June 1, 1960
Nationality - Citizenship: Italian

Address

National Research Council (CNR)
Dept. Engineering, ICT and Technologies for Energy and Transport (DIITET)
Piazzale Aldo Moro 7, 00185 Rome, Italy
Phone: +39.06.4993.3663, mobile + 39.366.4439817
e-mail : *emiliofortunato.campana@cnr.it*

Professional Rank / Position

Research Director / **Director, Dept of *Engineering, ICT and Technologies for Energy and Transport*** (**CNR-DIITET**)

> *The Department includes 20 research institutes (about 1500 FTE of which 1000 researchers), covering Industrial and Civil Engineering, Computer Science and Informatics, Applied Mathematics, Systems and Communication Engineering*

Education

- Honors degree ('*Summa Cum Laude*') in Mechanical Engineering, granted by the University of Rome "La Sapienza" (1984)
- Ph.D. degree in Theoretical and Applied Mechanics granted by the University of Rome "La Sapienza" (1991)

Languages

English, fluent; German, elementary; Italian (mother)

Past Employments / Professional Activities

- Since May 2017 **CNR - DIITET** – Director of the Department of Engineering, ICT and Technologies for Energy and Transport.
- *2011-2017*: **CNR - INSEAN** – Director of the Institute
- *2010*: **INSEAN[1]** - Managing Director
- *2009-2010*: **INSEAN** - Scientific Supervisor
- *2002-2009*: **INSEAN** - Research Director, head of the Dept. of *Ship Resistance & Optimization*
- *1996-2002*: **INSEAN** - Senior researcher
- *1991-1996*: **INSEAN** - Researcher
- *1989-1991*: **IBM - ECSEC** (*IBM - European Center for Scientific and Engineering Computing*)- Researcher
- *1986-1988*: **INSEAN** - Researcher Engineer

International Scientific Committees / Editor

Chairman

International Towing Tank Conference

> - Special Group on "Impact of CFD in Marine Hydrodynamics", *26th Int. Towing Tank Conf.*
> - Resistance Committee, *25th Int. Towing Tank Conf.*
> - Resistance Committee, *24th Int. Towing Tank Conf.*

NATO Science and Technology Organization - AVT (Advanced Vehicle Technology)

> Co-Chair, AVT-204, *Assess the Ability to Optimize Hull Forms of Sea Vehicles for Best Performance in a Sea Environment*

---

[1] **INSEAN** has been – from dal 1927 to 2010 – an independent research institute in the field of maritime engineering, under the supervision of the Ministry of Transport and of the Ministry of Defense. In 2010 **INSEAN** was included in the National Research Council of Italy, to form the **CNR-INSEAN** research institute.

Co-Chair, AVT-252, *Assessment of prediction methods for large amplitude dynamic maneuvers for naval vehicles*

ONR (Office of Naval Research, US Navy) Symposium on Naval Hydrodynamics
Organizing Committee, 26th ONR Symp. on Naval Hydrodynamics

Secretary
International Towing Tank Conference
Resistance Committee, 23rd Int. Towing Tank Conf.

Member
NATO Science and Technology Organization
Appointed national representative (research) in the **NATO Science and Technology Board (STB),** the highest authority within the Science and Technology Organization (STO)

NATO Science and Technology Organization - AVT (Advanced Vehicle Technology)
AVT-161: Assessment of Stability and Control Prediction Methods for NATO Air & Sea Vehicles;
AVT-183: Reliable Prediction of Separated Flow Onset and Progression for Air and Sea Vehicles
AVT-191: Application of Sensitivity Analysis and Uncertainty Quantification to Military Vehicle Design
AVT-216: Evaluation of Prediction Methods for Ship Maneuvering and Control
AVT-252: Stochastic Design Optimization For Naval And Aero Military Vehicles

ONR (Office of Naval Research, US Navy) Symposium on Naval Hydrodynamics
- Standing member (representing Europe) in the Organizing and Paper Committee, since 2015.
- Organizing and Paper Committee, 27th ONR Symp. on Naval Hydrodynamics
- Organizing and Paper Committee, 31th ONR Symp. on Naval Hydrodynamics

Others
- Scientific Committee, 9th International Conf. on Numerical Ship Hydrodynamics
- Scientific Committee, 5th Osaka Colloquium on Ship Viscous Flow and Hull Form Design by EFD and CFD
- Scientific Committee, ANTS 2012 - Eighth International Conference on Swarm Intelligence
Editor
- Journal of Marine Science and Technology (Springer), Associated Editor
- 19th Int. Workshop on Water Waves and Floating Bodies, Proceedings

Reviewer /Membership in European Structures

Reviewer for International Journals: *AIAA Journal • Computer & Fluids • Comp. Methods in Applied Mechanics and Engineering • IEEE Transaction on Evolutionary Computation • Int. J. for Numerical Methods in Fluids • J. of Ship Research • J. of Marine Science and Technology • Int. J. of Numerical Methods for Heat and Fluid Flow • J. of Engineering Mathematics • Iranian J. of Science and Technology • Ocean Engineering • Optimization and Engineering • Swarm Intelligence • Engineering Optimization • Journal of Optimization Theory and Applications • Numerical Algorithms*

**Reviewer for European
Research Agencies:**
- **French National Research Agency (ANR)** *- External reviewer for the "Investissements d'Avenir", action "Equipment of Excellence 2011" (Equipex 2011);*
- **Research Foundation of Flanders, FWO (Belgium)** *– External scientific reviewer;*
- **Dutch Technology Foundation (STW);** *External scientific reviewer.*

Reviewer for Academic Promotions:
- **USA:** *Pennsylvania State University / University of Michigan / University of Iowa*
- **UK:** *Universities of Glasgow and Strathclyde*
- **South Korea:** *Seoul National University*

Reviewer for Italian Ministries
- **Scientific Commission for Innovation and Research (Ministry of Infrastructure and Transport);** *Member since 2013, appointed by the Minister of Infrastructure and transport, D.G. Maritime and Inland Waterways Transport, Italy.*
- **National Expert for the Program Committee for Horizon 2020;** *Since 2013, appointed as national expert for the societal challenge "Smart, Green and Integrated Transport" by the Ministry of Education and Research, Italy.*

- *CORILA – Consortium for Coordination of Research Activities Concerning the Venice Lagoon System;* Member of the Management Board since 2013, appointed by the Ministry of Education and Research, Italy.
- *National Platform for Marine Technology;* From 2012 to 2013, Secretary of the national platform - mirror group of the European WATERBORNE[TP]- appointed by the Ministry of Infrastructure and Transport.
- *Regional Government of Lazio, Italy;* Scientific assistant on Technology Transfer, Research and Innovation (2007-2009).

Membership in Structures of the European Union

- *Joint Programming Initiative for Healthy and Productive Seas and Oceans (JPI Oceans).* Since 2013, Member of the JPI Oceans Management Board, Italian representative, on behalf of the Italian Ministry of Infrastructure and Transport .
- *Public Private Partnership "Vessels for the Future".* Since 2014, member of the Board of Directors

International Awards

- **36th Georg Weinblum Memorial Lecturer** (2013-2014), in recognition of his contributions to the field of marine hydrodynamics. The Weinblum Memorial Lecture is sponsored:
  - in Germany: by *Institut für Schiffbau* of the University of Hamburg;
  - in the United States: by *Naval Studies Board* of the *US National Research Council* and by the *Society of Naval Architects & Marine Engineers.*

  The lecturers are chosen by a Selection Committee representing the *Institut für Schiffbau*, the *Fachausschuss "Schiffshydrodynamik" der Schiffbautechnischen Gesellschaft*, and the *Journal of Ship Research Committee* and *Analytical Ship Wave Relation Panel* (H-5) of the *Society of Naval Architects and Marine Engineers.*

- **NATO RTO Scientific Achievement Award 2012.**
  The RTO Scientific Achievement Award is the highest research *group* award within NATO. The group awarded was the "AVT-161 - Assessment of Stability and Control Prediction Methods for NATO Air & Sea Vehicles".

- **American Bureau of Shipping (ABS) - Captain Joseph H. Linnard Prize** - Best paper presented at the SNAME (*Society of Naval Architects & Marine Engineers*, USA) Annual Meeting 2009

Educational Work

October 1993 - June 1994	Professor of Aerodynamics, Faculty of Aerospace Engineering, Univ. of Perugia, Italy.
March 1999 - June 1999	Professor of Hydraulics, Faculty of Environmental Engineering, Univ. of L'Aquila, Italy.
October 1999 - Jan. 2000	Professor of Hydraulics, Faculty of Environmental Engineering, Univ. of L'Aquila, Italy.

International invited lectures (since 2012)

2017	*Advanced Training School on Sustainable Blue Growth in the Mediterranean and Black Sea countries – Int. Summer School, OGS, Trieste, Italy*	Maritime technologies and naval engineering
2017	*ECCOMAS Conf. on Comput. Methods in Marine Engineering, MARINE 2017, Nantes, France*	Yes, we can: stochastic simulation-based design via high-fidelity computational hydrodynamics made possible
2016	*Sustainable Blue Growth in Mediterranean and Black Sea Countries – Int. Summer School, OGS, Trieste, Italy*	Marine technology for the future
2015	*Sustainable Blue Growth in South East Europe – Int. Summer School, OGS, Trieste, Italy*	Blue Growth: the marine technology point of view
2015	*Samsung Heavy Industries - Samsung Ship Model Basin, (Daejeon) Korea*	Recent Advancements of Naval Hydrodynamics
2015	*Seoul National University, (Soul) Korea*	Hydrodynamic Ship Design Optimization Considering Uncertainty
2015	*Hyundai Heavy Industries - Hyundai Maritime Research Institute, (Ulsan) Korea*	Recent Advancements of Naval Hydrodynamics
2015	*Pusan National University, (Pusan) Korea*	Hydrodynamic Ship Design Optimization Considering Uncertainty

2014	5th Korea-Italy S&T Forum, "Innovative Technologies and Strategies for the sustainability and quality of human life", Busan, Korea	Research pathways toward safer, smarter and greener ships
2014	National Maritime Research Institute, Tokyo, Japan	Research at CNR-INSEAN: a roadmap toward Horizon 2020
2014	Sustainable Blue Growth in South East Europe – Int. Summer School, OGS, Trieste, Italy	Oil spills: impacts of ship collisions
2014	Mechanical and Aerospace Engineering, The George Washington University, (Washington, DC) USA	Hydrodynamic ship design optimization considering uncertainty
2014	NAVSEA, Naval Surface Warfare Centre - Carderock Division, (West Bethesda, MD) USA	Hydrodynamic ship design optimization considering uncertainty
2013	Technical University of Berlin - Weinblum Memorial Lecture, (Berlin) Germany	Ship design under uncertainty via high-fidelity stochastic optimization
2013	Research Cooperation for the Sea of Tomorrow, Istituto Italiano di Cultura, (Tokyo) Japan	Research for greener and safer future maritime transport
2012	University of Michigan, (Ann Arbor) USA	Marine technology research at INSEAN-CNR
2012	University of Michigan, (Ann Arbor) USA	New developments in Smooth Particle Hydrodynamics 3D modeling of free-surface flows
2012	Hyundai Heavy Industries - Hyundai Maritime Research Institute, (Ulsan) Korea	CNR-INSEAN research on naval hydrodynamics
2012	WATERBORNE Technology Platform meeting, (Brussels), Belgium.	RITMARE - The Italian Research for the Sea
2012	EFTP (European Fishing Technology Platform) Workshop on Future Fishing Vessel Technologies, Capo Granitola (Italy)	Multipurpose fishing vessels: challenges for a sustainable European fishing fleet

Major International / European Research Projects

1) Variable-Physics techniques in Simulation-Based Design for High Speed Waterjet Ship Design
Funding : <u>Office of Naval Research (US Navy)</u>, 50%
Research Program : NICOP
Duration : 2008-2010
Participating nations : IT, USA, JP
Position : <u>Principal Investigator</u>

2) Global Optimization Methods Applied to High-Speed Ship Design
Funding : <u>Office of Naval Research (US Navy)</u>, 50%
Research Program : NICOP (N. 000140510617)
Duration : 2005-2008
Participating nations : IT, USA, JP
Position : <u>Principal Investigator</u>

3) Surface Combatant 5415 capsizing tests for validation of unsteady RANS codes
Funding : <u>Office of Naval Research (US Navy)</u>, 50%
Research Program : NICOP (N. 000140410288)
Duration : 2004-2008
Participating nations : IT, USA
Position : <u>Research staff</u>

4) Multiple Criteria CFD-Based Optimization for Ship Design
Funding : <u>Office of Naval Research (US Navy)</u>, 50%
Research Program : NICOP (N. 000140210489)
Duration : 2002 - 2005
Participating nations : IT,USA,JP
Position : <u>Principal Investigator</u>

6) HULLOPT - Optimal Techniques for Hull Geometry (EUCLID RTP 10.14)
Funding : <u>Western European Union (WEU - UEO)</u>, 50 %
Research Program : CEPA 10
Duration : 1999 - 2003
Participating nations : IT, GR, TK, UK
Position : <u>Project Manager</u>

7) Advanced Monohull Concepts: (THALES 10.111)
Funding : <u>Western European Union (WEU - UEO)</u>, 100%
Research Program : CEPA 10
Duration : 1999 - 2003
Participating nations : IT, NL, DM
Position : <u>Research staff</u>

Major National Research Projects

1) Cluster Tecnologico Nazionale TRASPORTI ITALIA 2020
Funding : *Ministry of Education and Research*
Research Program : **TRIM (Tecnologia e Ricerca Industriale per la mobilità Marina)**
Duration : 2014-2017

Position : Project Manager (Grant: 10.5 M€)

2) Flagship project RITMARE
Funding : *Ministry of Education and Research*
Duration : 2011-2015

Position : "Marine Technology" Subproject Manager
(Subproject Grant: 28 M€)

Published Work *(stand: September 2017)*

Book's chapters

[1]   A Serani, M Diez, EF Campana, G Fasano, D Peri, U Iemma, *Globally Convergent Hybridization of Particle Swarm Optimization Using Line Search-Based Derivative-Free Techniques*, In: **Recent Advances in Swarm Intelligence and Evolutionary Computation, Studies in Computational Intelligence**, Vol. 585, Yang, Xin-She (Ed.), Springer (2015).

[2]   M Diez, A Serani, C Leotardi, EF Campana, D Peri, U Iemma, G Fasano, S Giove, *A proposal of PSO particles' initialization for costly unconstrained optimization problems: ORTHOinit*, 5th Int. Conf., ICSI 2014, Hefei, China, October 17-20, 2014, Proceedings, Part I. In: **Advances in Swarm Intelligence, Lecture Notes in Computer Science**, Vol. 8794, pp 126-133 (2014).

[3]   EF Campana, Diez M., Fasano G., Peri D., *Initial particles position for PSO, in bound constrained optimization*, 4th Int. Conf., ICSI 2013, Harbin, China, June 12-15, 2013, Proceedings, Part I, In: **Advances in Swarm Intelligence, Lecture Notes in Computer Science**, Vol. 7928, pp 112-119 (2013).

[4]   EF Campana, G Fasano, D Peri, *Globally convergent modifications of Particle Swarm Optimization for Unconstrained Optimization*. In **Particle Swarm Optimization: Theory, Techniques and Applications**, Nova Publishers, Series: Advances in Engineering Mechanics, Bohua Sun ed, (2011).

[5]   D Peri, EF Campana, *High-Fidelity Models in Global Optimization*, **Lecture Notes in Computer Science**, Vol 3478, **Global Optimization and Constraint Satisfaction**, Vol 3478, pp 112-126 (2005).

International Journals

[6]   S.Marrone, A.Colagrossi, J.S.Park, E.F.Campana, *Challenges on the numerical prediction of slamming loads on LNG tank insulation panels*, **Ocean Engineering**, Vol. 141 (1), pp 512-530 (2017).

[7]   EF Campana, M Diez, G Liuzzi, S Lucidi, R Pellegrini, V Piccialli, F Rinaldi, A Serani "A multi-objective DIRECT algorithm for ship hull optimization", **Computational Optimization and Applications**, https://doi.org/10.1007/s10589-017-9955-0, pp 1-20, (2017).

[8]   M Diez, EF Campana, F Stern, "*A Stochastic optimization methods for ship resistance and operational efficiency via CFD*", **Structural Multidisciplinary Optimization**, DOI 10.1007 / s00158-017-1775-4, (2017).

[9]   A Serani, G Fasano, G Liuzzi, S Lucidi, U Iemma, EF Campana, M Diez, "*Ship hydrodynamic optimization by local hybridization of deterministic derivative-free global algorithms,*" **Applied Ocean Research**, Vol. 59, pp. 115-128. DOI: 10.1016/j.apor.2016.04.006, (2016).

[10]   C Leotardi, A Serani, U Iemma, EF Campana, M Diez, "*A variable-accuracy metamodel-based architecture for global MDO under uncertainty*", **Structural Multidisciplinary Optimization**, Vol. 54, pp. 573-593. DOI: 10.1007/s00158-016-1423-4, (2016).

[11]   EF Campana, M Diez, U Iemma, G Liuzzi, S Lucidi, F Rinaldi, A Serani, "*Derivative-free global ship design optimization using global/local hybridization of the DIRECT algorithm*", **Optimization and Engineering (OPTE)**, Vol. 15, No. 1, pp. 127-156. DOI: 10.1007/s11081-015-9303-0, (2016).

[12]   M Diez, EF Campana, F Stern, "*Design-space dimensionality reduction in shape optimization by Karhunen - Löeve Expansion*", **Comput. Methods Appl. Mech. Engrg.**, 283, 1525–1544, (2015).

[13]   S Volpi, M Diez, NJ Gaul, H Song, U Iemma, KK Choi, EF Campana, F Stern, "*Development and validation of a dynamic metamodel based on stochastic radial basis functions and uncertainty quantification*", **Structural and Multidisciplinary Optimization**, Vol. 51 (2), pp 347-368, (2015).

[14]   X Chen, M Diez, M Kandasamy, Z Zhang, EF Campana, F Stern, "*High-fidelity Global Optimization of Shape Design by Dimensionality Reduction, Metamodels and Deterministic Particle Swarm*", **Engineering Optimization**, Vol. 47 (4), pp 473-494, (2015).

[15]   M Diez, W He, EF Campana, F Stern, "*Uncertainty quantification of Delft catamaran resistance, sinkage and trim for variable Froude number and geometry using metamodels, quadrature and Karhunen–Loève expansion*", **J Mar Sci Technol**, Vol. 19 - 2, pp 143-169, (2014).

[16]   W He, M Diez, EF Campana, F Stern , Z Zou, "*A one-dimensional polynomial chaos method in CFD–Based uncertainty quantification for ship*

hydrodynamic performance", **Journal of Hydrodynamics**, 25(5):655-662, (2013).

[17] W He, M Diez, Z Zou, EF Campana, F Stern, "*URANS study of Delft catamaran total/added resistance, motions and slamming loads in head sea including irregular wave and uncertainty quantification for variable regular wave and geometry*", **Ocean Engineering**, 74, 189–217, (2013).

[18] M Kandasamy, D Peri, Y Tahara, W Wilson, M Miozzi, S Georgiev, E Milanov, EF Campana, F Stern, "*Simulation based design optimization of waterjet propelled Delft catamaran*", **International Shipbuilding Progress**, 60, 277–308 277, DOI 10.3233/ISP-130098, (2013).

[19] EF Campana, G Fasano, D. Peri, "*Penalty Function approaches for Ship Multidisciplinary Design Optimization (MDO)*", **European J. of Industrial Engineering**, Vol. 6, No. 6, 765 (2012).

[20] M Diez, D Peri, G Fasano, EF Campana, "*Hydroelastic optimization of a keel fin of a sailing boat: a multidisciplinary robust formulation for ship design*", **Structural and Multidisciplinary Optimization**, Vol. 46 (4), 613-625, (2012).

[21] M Kandasamy, D Peri, SK Ooi, P Carrica, F Stern, EF Campana, P Osborne, J Cote, N Macdonald, N de Waal, "*Multi-fidelity optimization of a high-speed foil-assisted semi-planing catamaran for low wake*", **J Mar Sci Technol**, Vol. 16 (2), 143–156, (2011)

[22] M Kandasamy, D Peri, SK Ooi, P Carrica, F Stern, EF Campana, P Osborne, J Cote, N Macdonald, N de Waal, "*CFD validation studies for a high-speed foil-assisted semi-planing catamaran*", **J Mar Sci Technol**, Vol. 16 (2), 157–167, (2011).

[23] Y Tahara, D Peri, EF Campana, F Stern, "*Single and Multiobjective Design Optimization of a Fast Multihull Ship: numerical and experimental results*", **J Mar Sci Technol**, Vol. 16 (4), 412-433, (2011).

[24] B Jacob, A Olivieri, M Miozzi, EF Campana, R Piva, "*Drag reduction by microbubbles in a turbulent boundary layer*", **Phys. Fluids** 22, (11) art. no. 115104 (2010).

[25] M Diez, D Peri, EF Campana, U Iemma, "*Robust Decision Making in Aerial and Marine Vehicle Optimization: a Designer's Viewpoint*", **Enterprise Risk Management**, Vol 2 (1), (2010).

[26] H Sadat-Hosseini, F Stern, A Olivieri, EF Campana, H Hashimoto, N Umeda, G Bulian, A Francescutto, "*Head-Waves Parametric Rolling of Surface Combatant*", **Ocean Engineering**, Vol. 37 (10), 859-878, (2010).

[27] EF Campana, G Fasano, A Pinto, "*Dynamic analysis for the selection of parameters and initial population, in particle swarm optimization*", **Journal of Global Optimization**, Vo. 48 (3), 347-397, (2010).

[28] EF Campana, D Peri, Y Tahara, M Kandasamy, F Stern, "*Numerical Optimization Methods for Ship Hydrodynamic Design*", **Transaction SNAME**, Vol. 117, 30-77, (2009).

[29] EF Campana, G Liuzzi, S Lucidi, D Peri, V Piccialli, A Pinto, "*New Global Optimization Methods for Ship Design Problems*", **Optimization and Engineering (OPTE)**, Vol. 10 (4), 533-555, (2009).

[30] Y. Tahara, D. Peri, EF Campana, F. Stern, "*Computational fluid dynamics-based multiobjective optimization of a surface combatant using a global optimization method*", **J Mar Sci Technol**, Vol. 13 (2), 95-116, (2008).

[31] A Olivieri, F Pistani, R Wilson, EF Campana, F. Stern, "*Scars and Vortices Induced by a Ship Bow and Shoulder Wave Breaking*", **Journal of Fluids Engineering**, Vol. 129 (11), 1445-1459 (2007).

[32] A Pinto, D Peri, EF Campana, "*Multiobjective Optimization of a Containership using Deterministic Particle Swarm Optimization*", **Journal of Ship Research**, Vol.51(3), 217-228 (2007).

[33] EF Campana, D. Peri, Y. Tahara, F. Stern, "*Shape Optimization in Ship Hydrodynamics using Computational Fluid Dynamics*", **Computer Methods in Applied Mechanics and Engineering**, 196, p. 634–651, (2006).

[34] D Peri, EF Campana, "*High-fidelity Models and Multiobjective Global Optimization Algorithms in Simulation Based Optimization*", **Journal of Ship Research**, 49(3), 159-175, (2005).

[35] A Iafrati, EF Campana, "*Free surface fluctuation behind microbreakers: space-time behavior and subsurface flow field*", **Journal of Fluid Mechanics**, Vol. 529, 311-347, (2005).

[36] D Peri, EF Campana, R Dattola, "*Multidisciplinary Design Optimization of a Frigate*", **Ship Technology Research**, Vol.52, 151-158, (2005).

[37] A Pinto, D Peri, EF Campana, "*Global Optimization Algorithms in Naval Hydrodynamics*", **Ship Technology Research**, Vol.51 (3), 123-123, (2004).

[38] D Peri, EF Campana, "*Multidisciplinary Design Optimization of a Naval Surface Combatant*", **Journal of Ship Research**, Vol.47(1), 1-12, (2003).

[39] A Iafrati, EF Campana, "*A Domain Decomposition Approach to Compute Breaking Waves*", **Int. Journal for Numerical Methods in Fluids**, Vol. 41 (4), 419-445, (2003).

[40] M Valorani, D Peri, EF Campana, "*Sensitivity Analysis Techniques to Design Optimal Ship Hulls*", **Optimization and Engineering (OPTE)**, Vol. 4 (4), 337-364, (2003).

[41] HW Coleman, F Stern, A Di Mascio, EF Campana, "*The problem with oscillatory behaviour in grid convergences studies*", **Journal of Fluids Engineering**, Transactions of the ASME, Vol. 123 (2), 438-439 (Technical Briefs), (2001).

[42] D Peri, M Rossetti, EF Campana, "*Design Optimization of Ship Hulls via CFD Techniques*", **Journal of Ship Research**, Vol. 45(2), 140-149, (2001).

[43] A Iafrati, A Di Mascio, EF Campana, "*A Level Set Technique Applied to Unsteady Free Surface Flows*",

Int. Journal for Numerical Methods in Fluids, Vol. 35 (3), 281-297, (2001).

[44] A Iafrati, A Carcaterra, E Ciappi, EF Campana, "*Hydroelastic Analysis of a Simple Oscillator Impacting the Free Surface*", **Journal of Ship Research**, Vol. 44 (4), December (2000).

[45] EF Campana, A Carcaterra, E Ciappi, A Iafrati, "*Some Insights into Slamming Forces: Compressible and Incompressible Phases*", Proceedings of the Institution of Mechanical Engineers, Part C: **Journal of Mechanical Engineering Science**, Vol. 214 no.6, 881-888, (2000).

[46] A Carcaterra, E Ciappi, A Iafrati, EF Campana, "*Shock Spectral Analysis of Elastic Systems Impacting on the Water Surface*", **Journal of Sound and Vibration**, 229 (3), 579-605, (2000).

[47] A Di Mascio, EF Campana, "*Yaw Flow Simulation for the Series 60*", **Ship Technology Research**, Vol.46 (4), 223-229, (1999).

[48] R Verzicco, F Lalli, EF Campana, "*Dynamics of Baroclinic Vortices in a Rotating, Stratified Fluid: a Numerical Study*", **Physics of Fluids**, Vol.9 (2), 419-432, (1997).

[49] M Landrini, EF Campana, "*Steady Waves and Forces About a Yawing Flat Plate*", **Journal of Ship Research**, Vol.40 (3), 179-192, (1996).

[50] EF Campana, A Di Mascio, PG Esposito, F Lalli, "*Viscous-Inviscid Coupling in Free Surface Ship Flows*", **Int. Journal for Numerical Methods in Fluids**, Vol. 21 (9), 699-722, (1995).

[51] P Bassanini, U Bulgarelli, EF Campana, F Lalli, "*The Wave Resistance Problem in a Boundary Integral Formulation*", **Surveys on Mathematics for Industry**, vol.4, 151-194, (1994).

[52] F Lalli, EF Campana, U Bulgarelli, "*Numerical Simulation of Fully Non-linear Steady Free Surface Flow*", **Int. Journal for Numerical Methods in Fluids**, Vol. 14 (10) , 1135-1149, (1992).

[53] EF Campana, F Lalli, U Bulgarelli, "*A Numerical Solution of the Non-linear Wave Resistance Problem for Simple Shaped Submerged Bodies*", **Meccanica**, Vol. 25, No 4, 258-264, (1990)

[54] EF Campana, F Lalli, U Bulgarelli, "*A Boundary Element Method for a Non-linear Free Surface Problem*", **Int. Journal for Numerical Methods in Fluids**, Vol. 9 (10), (1989).

[55] EF Campana, F Lalli, U Bulgarelli, "*A Numerical Method for Non-linear Free Surface Conditions in the Wave Resistance Problem*", **Archives of Mechanics**, Vol. 41 (2-3), 239-247, (1989).

International Conferences

[56] GJ Grigoropoulos, EF Campana, M Diez, C Hirsch and F Stern, *Methodologies for the Stochastic Design Optimization of Ships*, ECCOMAS Conf, VII Int. Conf. on **Numerical Methods in Marine Engineering MARINE 2017**, Nantes, 15-17 May, 2017.

[57] GJ Grigoropoulos, EF Campana, M Diez, A Serani, O Goren, K Sarioz, DB Danisman, M Visonneau, P Queutey, M Abdel-Maksoud and F Stern, *Mission-based hull form and propeller optimization of a transom stern destroyer for best performance in the sea environment*, ECCOMAS Conf, VII Int. Conf. on **Numerical Methods in Marine Engineering MARINE 2017**, Nantes, 15-17 May, 2017

[58] R Pellegrini, U Iemma, A Serani, EF Campana, M Diez, G Liuzzi, F Rinaldi, S Lucidi, *Global/local hybridization of the multi-objective particle swarm optimization with derivative-free multi-objective local search*, **SIMAI 2016**, Congress of the Italian Society of Industrial and Applied Mathematics, Milan (Italy), 13-16 September 2016.

[59] A Serani, C Leotardi, EF Campana, M Diez, *Design-space dimensionality reduction in hydrodynamic shape optimization by generalized Karhunen-Loève Expansion*, **SIMAI 2016**, Congress of the Italian Society of Industrial and Applied Mathematics, Milan (Italy), 13-16 September 2016.

[60] M Diez, A Serani, F Stern, EF Campana, *Combined geometry and physics based method for design-space dimensionality reduction in hydrodynamic shape optimization*, **31**th **ONR Symp. on Naval Hydrodynamics**, Monterey, CA, USA, 11-16 September 2016.

[61] R Broglia, M Diez, D Durante, A Olivieri, EF Campana, F Stern, *Statistical Validation of a High-speed Catamaran in Irregular Waves*, **31**th **ONR Symp. on Naval Hydrodynamics**, Monterey, CA, USA, 11-16 September 2016.

[62] R Pellegrini, U Iemma, C Leotardi, EF Campana, M Diez, *Multi-fidelity adaptive global Metamodel of expensive computer simulations*, **IEEE CEC 2016**, World Congress on Computational Intelligence, Special Session on Multi-Fidelity Design Optimization under Epistemic Uncertainties, Vancouver, Canada, 25-29 July 2016.

[63] M Diez, A Serani, EF Campana, S Volpi, F Stern, *Design space dimensionality reduction for single- and multi-disciplinary shape optimization*, AIAA Paper 2016-4275, **17th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference**, AIAA Aviation and Aeronautics Forum and Exposition 2016, Washington DC, USA, 13-17 June 2016.

[64] R Pellegrini, C Leotardi, U Iemma, EF Campana, M Diez, *A multi-fidelity adaptive sampling method for metamodel-based uncertainty quantification of computer simulations*, **VII European Congress on Computational Methods in Applied Sciences and Engineering** (**ECCOMAS** Congress 2016), Crete, Greece, 2016.

[65] A Serani, EF Campana, F Stern, M Diez, *A multi-objective optimization: effects of potential flow formulation and RANS*, **15**th **Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT'16,** Lecce, Italy, 2016.

[66] M Diez, S Volpi, A Serani, F Stern, EF Campana, *Simulation-based Design Optimization by Sequential Multi-criterion Adaptive Sampling and Dynamic Radial Basis Functions*, **EUROGEN 2015** – Int. Conf. on Evolutionary and Deterministic Methods for Design, Optimization and Control, Glasgow, UK, 2015.

[67] R Pellegrini, C Leotardi, U Iemma, EF Campana, M Diez, *Structural and Hydrodynamic characterization of a NACA 0009 hydrofoil by finite elements*, **18**th **Numerical Towing Tank Symp. (NuTTS'15),** Cortona (Italy), 2015.

[68] C Leotardi, EF Campana, M Diez, *Resistance reduction of a military ship by variable accuracy metamodel-based multidisciplinary robust design optimization*, VI Int. Conference on Computational Methods for Coupled Problems in Science and Engineering, Venice (Italy), **COUPLED PROBLEMS 2015.**

[69] M Diez, EF Campana, F Stern, *Development and Evaluation of Hull-form Stochastic Optimization Methods for Resistance and Operability*, **FAST,13**th **International Conference on Fast Sea Transportation**, Washington DC (USA), 2015.

[70] M Diez, A Serani, EF Campana, O Goren, K Sarioz, D Bulent Danisman, G Grigoropoulos, E Aloniati, M Visonneau, P Queutey, F Stern, *Multi-objective Hydrodynamic Optimization of the DTMB 5415 for Resistance and Seakeeping*, **FAST,13**th **International Conference on Fast Sea Transportation**, Washington DC (USA), 2015.

[71] M Diez, R Broglia, D Durante, EF Campana, F Stern, *Validation of High-fidelity Uncertainty Quantification of a High-speed Catamaran in Irregular Waves*, **FAST,13**th **International Conference on Fast Sea Transportation**, Washington DC (USA), 2015.

[72] EF Campana, F Stern, M Diez, *Hydrodynamic ship design optimization considering uncertainty, NAV 2015,* **18th Int. Conference on Ships and Shipping Research**, Lecco (Italy).

[73] A Serani, G Fasano, G Liuzzi, S Lucidi, U Iemma, EF Campana, M Diez, *Derivative-free global design optimization in ship hydrodynamics by local hybridization*, 14th Int. Conference on Computer and IT Applications in the Maritime Industries, **COMPIT 2015,** Ulrichshusen, Germany

[74] M Diez, A Serani, C Leotardi, EF Campana, D Peri, U Iemma, G Fasano, S Giove, *A proposal of PSO particles' initialization, for costly unconstrained optimization problems: ORTHOinit*, **5**th **Int. Conf. on Swarm Intelligence (ICSI'2014),** Hefei (China), 2014.

[75] C Leotardi, M Diez, A Serani, U Iemma, EF Campana, *A Framework for Efficient Simulation-Based Multidisciplinary Robust Design Optimization with Application to a Keel Fin of a Racing Sailboat*, **Int. Conf. on Engineering and Applied Sciences Optimization (OPTI 2014),** 2014.

[76] A. Serani, M. Diez, C. Leotardi, D. Peri, G. Fasano, U. Iemma, EF Campana, *On the Use of Synchronous and Asynchronous Single-Objective Deterministic Particle Swarm Optimization in Ship Design Problems*, **Int. Conf. on Engineering and Applied Sciences Optimization (OPTI 2014)***,* 2014.

[77] M Diez, A Serani, U Iemma, EF Campana, *A fish shoal algorithm for global derivative-free simulation-based ship design optimization*, **17**th **Numerical Towing Tank Symp. (NuTTS'14),** Marstrand (Sweden), 2014.

[78] R Pellegrini, A Serani, M Diez, U Iemma, EF Campana, *Multi-objective extensions of the deterministic particle swarm algorithm for RBRDO in ship design: a parametric study*, **17**th **Numerical Towing Tank Symp. (NuTTS'14),** Marstrand (Sweden), 2014.

[79] R Pellegrini, EF Campana, M Diez, A Serani, F Rinaldi, G Fasano, U Iemma, S Lucidi, G Liuzzi, F Stern, *Application of derivative-free multi-objective algorithms to reliability-based robust design optimization of a high-speed catamaran in real ocean environment*, **EngOpt2014 - 4th Int. Conf. on Engineering Optimization,** 2014.

[80] Y Tahara, M Diez, S Volpi, X Chen, EF Campana, F Stern, *CFD-Based Multiobjective Stochastic Optimization of a Waterjet Propelled High Speed Ship,* **30**th **ONR Symp. on Naval Hydrodynamics,** Hobart (Australia), 2014.

[81] M Diez, A Serani, C Leotardi, EF Campana, D Peri, U Iemma, G Fasano, S Giove, *A proposal of PSO particles' initialization for costly unconstrained optimization problems: ORTHOinit*, 5th Int. Conference ICSI 2014, Hefei (China) 2014, Proceedings, Part I. in: Advances in Swarm Intelligence, **Lecture Notes in Computer Science Volume 8794,** 2014, pp 126-133.

[82] C Leotardi, M Diez, A Serani, U Iemma, EF Campana, *Efficient simulation-based design optimization for fluid-structure interaction problems affected by uncertainty*, (*extended abstract only*) 17th **U.S. Congress on Theoretical and Applied Mechanics,** Michigan State University, 2014.

[83] C Leotardi, M Diez, A Serani, U Iemma, EF Campana, *A framework for efficient simulation-based multidisciplinary robust design optimization with application to a keel fin of a racing sailboat*, **OPT-i 2014, 1**st **Int. Conf. on Engineering and Applied Sciences Optimization,** Kos Island, Greece, 2014.

[84] A Serani, M Diez, C Leotardi, D Peri, G Fasano, U Iemma, EF Campana, *On the use of*

synchronous and asynchronous single-objective deterministic particle swarm optimization in ship design problems, **OPT-i 2014, 1st International Conference on Engineering and Applied Sciences Optimization**, Kos Island, Greece, June 2014

[85] M Diez, X Chen, EF Campana, F Stern, *Reliability-based robust design optimization for ships in real ocean environment,* **FAST, 12th International Conference on Fast Sea Transportation**, Amsterdam (Netherlands), 2013.

[86] X Chen, M Diez, M Kandasamy, EF Campana, F Stern, *Design optimization of the waterjet-propelled delft catamaran in calm water using urans, design of experiments, metamodels and swarm intelligence*, *FAST,* **12th International Conference on Fast Sea Transportation**, Amsterdam (Netherlands), 2013.

[87] EF Campana, M Diez, G Fasano, D Peri, *Initial Particles Position for PSO in Bound Constrained Optimization*, in **Advances in Swarm Intelligence, 4th International Conference, ICSI 2013**, Harbin (China), 2013.

[88] D Peri, M Diez, M Kandasamy, Y Tahara, M Miozzi, EF Campana, F Stern, *Simulation Based Design with Variable Physics Modeling and Experimental Verification of a Water-Jet propelled Catamaran,* **29th ONR Symp. on Naval Hydrodynamics**, Gothenburg (Sweden), 2012.

[89] W He, M Diez, D Peri, EF Campana, Y Tahara, F Stern, *Uncertainty Quantification of Delft Catamaran Added Resistance and Motions for Variable Regular and Irregular Head Waves and Geometry,* **29th ONR Symp. on Naval Hydrodynamics**, Gothenburg (Sweden), 2012.

[90] Y Tahara, H Kobayashi, M Kandasamy, W He, D Peri, M Diez, EF Campana, F Stern, 2012, *CFD-Based Multiobjective Stochastic Optimization of a Waterjet Propelled High Speed Ship*, **29th Symposium on Naval Hydrodynamics**, Gothenburg (Sweden), 2012.

[91] M Kandasamy, W He, T Takai, Y Tahara, D Peri, EF Campana, W Wilson, F Stern, *Optimization of Waterjet Propelled High Speed Ships - JHSS and Delft Catamaran*, **11th Int. Conf. on Fast Sea Transportation FAST**, Honolulu, Hawaii, USA, 2011.

[92] F Fabbri, EF Campana, C Simonsen, *An experimental study of the water depth effects on the KVLCC2 tanker*, **AVT-189 Specialists Meeting on Assessment of Stability and Control Prediction Methods for NATO Air and Sea Vehicles**, Portsdown West, UK, 2011.

[93] M Diez, D Peri, G Fasano, EF Campana, *Multidisciplinary Robust Optimization for Ship Design,* **28th ONR Symp. on Naval Hydrodynamics**, Pasadena (USA), 2010.

[94] A Olivieri, A Francescutto, EF Campana, F Stern, *Experimental investigation of Parametric Roll in regular head waves for the ONR Tumblehome,* **28th ONR Symp. on Naval Hydrodynamics**, Pasadena (USA), 2010.

[95] B Jacob, M Miozzi, A Olivieri, EF Campana and R Piva, *Modifications of the turbulent structure in a bubbly boundary layer*. **12th EUROMECH European Turbulence Conference, Marburg, GERMANY** Sep. **07-10, 2009. In Advances in Turbulence XII,** 132, 367-370 (2009)

[96] M Kandasamy, S-K Ooi, P Carrica, F Stern, EF Campana, D Peri, P Osborne, J Cote, N Macdonald, N de Waal, *CFD Validation Studies for a High-Speed, Foil-Assisted, Semi-Planing Catamaran*, **10th Int. Conf. on Fast Sea Transportation FAST**, Athens, Greece, 2009.

[97] D Peri, EF Campana, M Kandasamy, S-K Ooi, P Carrica, F Stern, P Osborne, N Macdonald, N de Waal, *Potential Flow Based Optimization of a High Speed, Foil-Assisted, Semi-Planning Catamaran For Low Wake*, **10th Int. Conf. on Fast Sea Transportation FAST**, Athens, Greece, 2009.

[98] D Peri, EF Campana, *Variable Fidelity and Surrogate Modeling in Simulation-Based Design*, **27th ONR Symp. on Naval Hydrodynamics**, Seul (Korea), 2008.

[99] Y Tahara, D Peri, EF Campana, M Kandasamy, F Stern, *Single and Multiobjective Design Optimization of a Fast Multihull Ship: numerical and experimental results*, **27th ONR Symp. on Naval Hydrodynamics**, Seul (Korea), 2008.

[100] HJ Kim, HH Chun, D Peri, EF Campana, *Optimizing using Parametric Modification Functions and Global Optimization Methods*, **27th ONR Symp. on Naval Hydrodynamics**, Seul (Korea), 2008.

[101] F Pistani, A Olivieri, EF Campana, *Effects of Surface Tension in the Near Field Wave Breaking of Ships*, **OMAE2008, 27th ASME Conf. on Offshore Mechanics and Arctic Engineering**, Estoril, Portugal, 2008.

[102] A Olivieri , A Francescutto , EF Campana and F Stern, *Parametric Roll Highly Controlled Experiments for an innovative ship design,* **OMAE2008, 27th Int. Conf. on Offshore Mechanics and Arctic Engineering**, Estoril, Portugal, 2008.

[103] F Stern, EF Campana, *Head-Waves Parametric Rolling of Surface Combatant,* **NATO AVT-152 on Limit Cycle Oscillations and Other Amplitude-Limited, Self Excited Vibrations**, Norway, 2008.

[104] D Peri, A Pinto, G Fasano, EF Campana, *High-fidelity modeling and parallel architecture in the simulation-based design of a fast multi-hull ship*, **ICIAM, Int. Conf. Industrial and Applied Mathematics**, Zurich (Switzerland), 2007.

[105] G Fasano, EF Campana, D Peri, A Pinto, *Particle-swarm optimization method in the MDO of a sail-boat keel*, **6th Int. Congress on Industrial and Applied Mathematics**, Zurich (Switzerland), 2007.

[106] EF Campana, G Fasano , D Peri and A Pinto, *Nonlinear Programming Approaches in the Multidisciplinary Design Optimization of a Sailing Yacht Keel Fin*, **9th Int. Conf. on Numerical Ship Hydrodynamics**, Ann Arbor (MI,USA), 2007.

[107] SHS Hosseini, I-R Park, F Stern, A Olivieri, EF Campana and A Francescutto, *Complementary URANS CFD and EFD for Validation Extreme Motions Predictions,* **9th Int. Conf. on Numerical Ship Hydrodynamics**, Ann Arbor (MI,USA), 2007.

[108] Y Tahara, EF Campana, D Peri, A Pinto, M Kandasamy and F Stern, *Global Optimization and Variable Fidelity Strategies in the Single and Multiobjective Optimal Design of Fast Multihull Ships*, **9th Int. Conf. on Numerical Ship Hydrodynamics**, Ann Arbor (MI,USA), 2007.

[109] A Pinto, R Broglia, E Ciappi, A Di Mascio, EF Campana, P Rocco, *Vortex Suppression Efficiency of Discontinuous Helicoidal Fins*, **OMAE2007, 26th Int. Conf. on Offshore Mechanics and Arctic Engineering**, San Diego, California (USA), 2007.

[110] B Jacob, A Olivieri, M Miozzi, EF Campana, R Piva, *Velocity statistics in microbubble-laden turbulent boundary layer*, **ETC11, 11th European Turbulence Conf.**, Porto, Portugal, 2007.

[111] EF Campana, G Fasano, D Peri, A Pinto, *Particle Swarm Optimization: efficient globally convergent modification*. III European Conference on Computational Mechanics: Solids, Structures and Coupled Problems in Engineering (ECCM-2006), Lisbon, Portugal 5th - 8th June 2006. in **III European Conference on Computational Mechanics**, Page 412, Springer 2006. ISBN: 978-1-4020-4994-1

[112] D Peri, A Pinto, EF Campana, *Multi-Objective Optimization of Expensive Objective Functions with Variable Fidelity Models*, Workshop on *LargeScale Nonlinear Optimization,* Erice, Italy, June 22-July 1, 2004. In Large-Scale Nonlinear Optimization, Pages 223-241, Springer 2006. ISBN: 0-387-30063-5

[113] EF Campana, G Fasano, A. Pinto, *Dynamic system analysis and initial particle position in Particle Swarm Optimization*, **IEEE Swarm Intelligence Symp.**, Indianapolis, Indiana (USA), 2006.

[114] EF Campana, D Peri, A Pinto, Y Tahara, M Kandasamy, F Stern, C Cary, R Hoffman, J Gorski, C Kennell, *Simulation-Based Design of Fast Multihull Ships*, **26th ONR Symp. on Naval Hydrodynamics**, Rome (Italy), 2006.

[115] F Pistani, A Olivieri, EF Campana, *Experimental study of the wave generation around a ship bow wave at different scales*, **21th Int. Workshop on Water Waves and Floating Bodies**, Loughborough (UK), 2006.

[116] EF Campana, G Fasano , D Peri, A Pinto, *Particle swarm optimization: Efficient globally convergent modifications*, in CA Mota Soares, et al. (Eds.) , **III European Conf. on Computational Mechanics, Solids, Structures and Coupled Problems in Engineering**, Lisbon (Portugal).

[117] A Olivieri, EF Campana, F Stern, A Francescutto, *Capsize high-quality data for validation of URANS codes*, **26th ONR Symp. on Naval Hydrodynamics**, Rome (Italy), 2006.

[118] A Olivieri, EF Campana, F Stern, *Beam seas tests of two different ship models in large amplitude regular waves*, **STAB Conf.**, Rio de Janeiro (Brazil), 2006.

[119] A Pinto, R Broglia, A Di Mascio, EF Campana, P Rocco, *Numerical Investigation of the Unsteady Flow at High Reynolds Number over a Marine Riser with Helical Strakes*, **OMAE2006, 25th Int. Conf. on Offshore Mechanics and Arctic Engineering**, Hamburg (Germany), 2006.

[120] EF Campana, D Peri, A Pinto, *Multiobjective Shape Optimization of a Cruise Ship*, **Int. Symp. on Marine Design**, La Spezia, Italy, 2006.

[121] A. Pinto, R. Broglia, E.F. Campana, A. Di Mascio, D. Peri, *RANS Analysis of the Interference Effect in Catamarans*, **9th Numerical Towing Tank Symp. (NuTTS'06)**, Le Croisic (France), 2006.

[122] E. F. Campana, G. Fasano, D. Peri, A. Pinto, *Particle Swarm Optimization for Ship design*, **ECCM2006 – III European Conf. on Computational Solid and Structural Mechanics**, Lisbona, Portogallo, 5 – 8 giugno 2006.

[123] EF Campana, G Fasano, D Peri, Issues on Nonlinear Programming for Multidisciplinary Design Optimization (MDO) in Ship Design Framework (invited), **NuTT Symp.**, Varna (Bulgaria), 2005.

[124] D Peri, EF Campana, Global Optimization for Safety and Comfort, **4th Int. Conf. on Computer Applications and Information Technology in the Maritime Industries (Compit'05)**, Hamburg (Germany), 2005.

[125] A. Pinto, E. F. Campana, *A Multi-Swarm Algorithm for Multiobjective Ship Design Problems*, **4th Int. Conf. on Computer Applications and Information Technology in the Maritime Industries (Compit'05)**, Hamburg (Germany), 2005.

[126] EF Campana, A Pinto, D Peri, *A Particle Swarm Optimization Algorithm for Multiobjective Design Problems,* **2005 SIAM Conf. on Optimization**, Stockholm (Sweden), 2005.

[127] G Fasano, D Peri, EF Campana, *Numerical Experience in Multidisciplinary Design Optimization (MDO) for ship design*, **2005 SIAM Conf. on Optimization**, Stockholm (Sweden), 2005.

[128] D Peri, EF Campana, *Multiobjective Global Optimization Algorithms in Simulation Based Design*, **2005 SIAM Conf. on Optimization**, Stockolm (Sweden), 2005.

[129] EF Campana, D Peri, A Pinto, F Stern, Y Tahara, *A Comparison of Global Optimization Methods with Application to Ship Design,* **5th Osaka Colloquium on Advanced CFD Applications to**

Ship Flow and Hull Form Design, Osaka (Japan), 2005.

[130] Y Tahara, D Peri, EF Campana, F Stern, *CFD-Based Multiobjective Optimization of a Surface Combatant*, **5ᵗʰ Osaka Colloquium on Advanced CFD Applications to Ship Flow and Hull Form Design**, Osaka (Japan), 2005.

[131] D Peri, A Pinto, EF Campana, *Global Optimization of Fast Vessels*, **8ᵗʰ Int. Conf. on Fast Sea Transportation FAST**, St. Petersburg (Russia), 2005.

[132] EF Campana, G Fasano, S Lucidi, D Peri, A Pinto, M Sciandrone, *Nonlinear Programming techniques for Multidisciplinary Design Optimization (MDO)*, 22th **IFIP TC 7 Conf. on System Modelling and Optimization**, Torino, Italy, 2005.

[133] D Battistin, D Peri, EF Campana, *Geometry and Resistance of the IACC Systematic Series "Il Moro di Venezia",* **17ᵗʰ Chesapeake Sailing Yacht Symp.**, Annapolis (MD), USA, 2005.

[134] EF Campana, A Cancello, B Jacob, A Olivieri, R Piva, P Van Nostrum, *The effect of microbubbles on the structure of a turbulent boundary layer over a flat plate*, **2ⁿᵈ Int. Symp. On Seawater Drag Reduction**, Busan (S. Korea), 2005.

[135] A Iafrati, EF Campana, *Air entrainment induced by vorticity–free-surface interaction,* **NuTT Symp.**, Hamburg (Germany), 2004.

[136] EF Campana, D. Peri, Y. Tahara, F. Stern, *Comparison and Validation of CFD Based Local Optimization Methods for Surface Combatant Bow*, **25ᵗʰ ONR Symp. on Naval Hydrodynamics**, St John's (Canada), 2004.

[137] A Iafrati, EF Campana, RG Ledesma, KT Kiger, JH Duncan, *Air entrainment induced by the impact of a planar translating jet on a flat free surface*, **25ᵗʰ ONR Symp. on Naval Hydrodynamics**, St John's (Canada), 2004

[138] A Iafrati, EF Campana, *Air Entrainment Induced by Vorticity - Free Surface Interaction,* **6ᵗʰ Int. Conf. on Hydrodynamics (ICHD)**, Perth (Australia), 2004

[139] A Iafrati, EF Campana, UP Bulgarelli, *Entrainment of Air Bubbles during Strong Vorticity-Free Surface Interaction,* **Int. Congress of Theoretical and Applied Mechanics ICTAM**, Warsaw (Poland), 2004.

[140] EF Campana, G Liuzzi, S Lucidi, D Peri, V Piccialli, A Pinto, *Global Optimization Methods for Ship Design Problems*, **Optimization 2004 (FCUL)**, Lisbon (Portugal), 2004.

[141] D Peri, EF Campana, R Dattola, *Multidisciplinary Design Optimization of a Naval Frigate*, **10ᵗʰ AIAA/ISSMO Multidisciplinary Analysis and Optimization (MA&O) Conf.** (AIAA-2004-4613), Albany, NY (USA), 2004.

[142] A Pinto, D Peri, EF Campana, *Global Optimization Algorithms in Naval Hydrodynamics*, **3ʳᵈ Int. Conf. on Computer Applications and Information Technology in the Maritime Industries (Compit'04)**, Siguenza (Spain), 2004.

[143] A Iafrati, EF Campana, *Spectral Analysis of the Free Surface Fluctuation behind Microbreakers,* **19ᵗʰ Int. Workshop on Water Waves and Floating Bodies**, Cortona (Italy), 2004.

[144] D. Peri, EF Campana, *High-Fidelity Models in Global Optimization*, 2nd International Workshop on Global Optimization and Constraint Satisfaction, Lausanne, Switzerland, Nov 18-21, 2003. In **Global Optimization and Constraint Satisfaction**, 112-126, Springer 2005. ISBN: 3-540-26003-X.

[145] D Peri, EF Campana, *Global and Local Optimization with Variable Fidelity Modeling in ship design*, **European MACSInet Open Industrial Days on Modeling, Analysis and Optimization of Coupled PDE Systems for Industrial Design**, Sophia Antipolis (France), 27-29 October 2003.

[146] EF Campana, D Peri, *High-fidelity solvers in the design optimization of ships*, **18ᵗʰ Int. Symp. on Mathematical Programming**, Copenhagen (Denmark), 2003.

[147] D Peri, EF Campana, *High-fidelity models in Simulation Based Design*, **8ᵗʰ Int. Conf. on Numerical Ship Hydrodynamics**, Busan (S. Korea), 2003.

[148] D Peri, EF Campana, *High-fidelity models in the Multi-Disciplinary Optimization of a frigate ship,* **2ⁿᵈ MIT Conf. on Computational Fluid and Solid Mechanics**, Cambridge, MA (USA), 2003.

[149] A Iafrati, EF Campana, *Direct numerical simulation of surface tension dominated and non dominated breaking waves*, **24ᵗʰ ONR Symp. on Naval Hydrodynamics**, Fukuoka (Japan), 2002.

[150] EF Campana, A. Iafrati, *Surface tension effects on breaking waves*, **17ᵗʰ Int. Workshop on Water Waves and Floating Bodies**, Cambridge (UK), 2002.

[151] D Peri, EF Campana, A Di Mascio, *Development of CFD-based design optimization architecture,* **1ˢᵗ MIT Conf. on Computational Fluid and Solid Mechanics**, Cambridge, MA (USA), 2001, published in *Computational Fluid and Solid Mechanics,* ed. KJ Bathe, Elsevier, 2001.

[152] EF Campana, A Iafrati, *Unsteady Free Surface Waves by Domain Decomposition Approach*, **16ᵗʰ Int. Workshop on Water Waves and Floating Bodies**, Hiroshima (Japan), 2001.

[153] D Peri, D Ranocchia, EF Campana, *Numerical optimization of a fishing vessel with regards to the COG positioning*, **7ᵗʰ Int. Symp. on Techniques and Technology in Fishing Vessels**, Ancona (Italy), 2001.

[154] A Iafrati, A Olivieri, F Pistani, EF Campana, *Numerical and experimental study of the wave breaking generated by a submerged hydrofoil*, **23ʳᵈ ONR Symp. on Naval Hydrodynamics**, Val de Reuil (France), 2000.

[155] A Iafrati, A Di Mascio, EF Campana, *Computation of free surface wave breaking via the level set approach*, **ONR 2000 free surface turbulence and bubbly flows workshop**, California Institute of Technology, Pasadena, CA (USA), 2000.

[156] M Valorani, D Peri, EF Campana, *Efficient strategies to design optimal ship hulls,* **8th AIAA / USAF/ NASA conf. On Multidisciplinary Analysis and Optimization**, Long Beach, CA (USA), 2000.

[157] EF Campana, D Peri, I Zotti, *Hydrodynamic performance comparison between twin hulls*, **NAV 2000 Conf.**, Venezia (Italy), 2000.

[158] D Peri, M Rossetti, EF Campana, *An Example of Ship Hull Optimization via Numerical Techniques*, **2nd Int. Conf. on Computer Applications and Information Technology in the Maritime Industries (Compit'00)**, Potsdam (Germany), 2000.

[159] D Peri, M Rossetti, EF Campana, *Improving the Hydrodynamic Characteristics of Ship Hulls via Numerical Techniques*, **9th Congress of the Int. Maritime Association of Mediterranean - IMAM 2000**, Ischia (Italy), 2000.

[160] A Iafrati, EF Campana, A *level set technique applied to complex free surface flows*, **ASME 2000 Fluid Engineering Division Summer Meeting**, Boston, MA (USA), 2000.

[161] EF Campana, D Peri, M. Rossetti, *Ships of the Optimum Shape by Direct Numerical Optimization*, **6th SIAM Conf. on Optimization**, Atlanta, GE (USA), 1999.

[162] M Rossetti, D Peri, EF Campana, *Numerical Ship Hull Optimization*, **Nutt Symp.**, Roma, Italy, 1999.

[163] A Di Mascio, EF Campana, *The Numerical Solution of the Yaw Flow of a Free Surface Ship*, **7th Int. Conf. on Numerical Ship Hydrodynamics**, Nantes (France), 1999.

[164] A Iafrati, A Carcaterra, E Ciappi, EF Campana, *Hydroelastic Analysis of Two Dimensional Slamming Phenomena*, **7th Int. Conf. on Numerical Ship Hydrodynamics**, Nantes (France),1999

[165] A Carcaterra, E Ciappi, A Iafrati, EF Campana, *Slamming of Elastic Structures on the Water Surface: a Shock Spectral Approach*, **9th ISOPE Conf.**, Brest (France),1999.

[166] A Iafrati, EF Campana, *A Level − Set Approach for Unsteady Free Surface Flows*, **Nutt Symp.**, Roma (Italy), 1999.

[167] A Iafrati, A Carcaterra, E Ciappi, EF Campana, *Impact of Rigid and Elastic Systems over the Water Surface*, **2nd Int. Conf. on Hydroelasticity**, Fukuoka (Japan),1998.

[168] A Iafrati, EF Campana, *Unsteady Free Surface Flow around hydrofoils*, **BEM 20** , Orlando, FL (USA), 1998.

[169] EF Campana, A Carcaterra, E Ciappi, A Iafrati, *Parametric Analysis of Slamming Forces: Compressible and Incompressible Phases* , **3rd Int. Conf. on Hydrodynamics (ICHD)**, Seul (S. Korea),1998.

[170] EF Campana, A Di Mascio, R Penna, *CFD analysis of the flow past a ship in steady drift motion*, **3rd Osaka Colloquium on Advanced CFD Applications to Ship Flow and Hull Form Design**, Osaka (Japan), 1998.

[171] A Di Mascio, R Penna, M Landrini, EF Campana, *Viscous Free Surface Flow past a Ship in Steady Drift Motion*, **12th Int. Workshop on Water Waves and Floating Bodies**, Marseilles (France), 1997.

[172] A Di Mascio, R Penna, M Landrini, EF Campana, *Numerical Simulation of the Flow about a Free Surface Piercing Flat Plate*, **10th Int. Conf. on Numerical Methods for Laminar and Turbulent Flow**, Swansea (UK), 1997.

[173] A Di Mascio, M Landrini, EF Campana, *On the Modeling of the Flow past a Free Surface Flat Plate*, **21st ONR Symp. on Naval Hydrodynamics**, Trondheim (Norway), 1996.

[174] M Landrini, EF Campana, A Di Mascio, *Numerical Evaluation of Force Coefficients of a Yawing Flat Plate*, **2nd Int. Conf. on Hydrodynamics (ICHD)**, Hong Kong, 1996.

[175] EF Campana, A Di Mascio, PG Esposito, *Domain Decomposition Technique for the Design of Twin Hull Ship*, **2nd Int. Conf. on Hydrodynamics (ICHD)**, Hong Kong, 1996.

[176] M Landrini, EF Campana, *Wave and Forces about a Turning Flat Plate*, **10th Int. Workshop on Water Waves and Floating Bodies**, Oxford (UK), 1995.

[177] EF Campana, PG Esposito, R Penna, *Numerical Simulation of the Drift Motion of a Ship*, **20th ONR Symp. on Naval Hydrodynamics**, Santa Barbara, CA (USA), 1994.

[178] EF Campana, A Di Mascio, PG Esposito, F Lalli, *A Multidomain approach to Free Surface Viscous Flow*, **8th Int. Workshop on Water Waves and Floating Bodies**, S. John's (Canada), 1993.

[179] EF Campana, A Di Mascio, PG Esposito, F Lalli, *Domain Decomposition in Free Surface Viscous Flows,* **6th Int. Conf. on Numerical Ship Hydrodynamics**, Iowa City, IO (USA),1993.

[180] EF Campana, A Di Mascio, P.G. Esposito, F. Lalli, *Viscous-Inviscid Coupling in Ship Hydrodynamics*, **11th Australasian Fluid Mechanics Conf.**, Hobart (Australia), 1992.

[181] F Lalli, EF Campana, U Bulgarelli, *Ship Waves Computations*, **7th Int. Workshop on Water Waves and Floating Bodies** , Val de Reuil (France), 1992.

[182] R Verzicco, EF Campana, F Lalli, *Numerical Simulations of the Stability of Vortices in a Rotating Stratified Fluid,* in **Geophysical Flows. Effects of Body Forces in Turbulent Flows**, Barcelona (Spain), 1992.

[183] F Lalli, EF Campana, U Bulgarelli, *Numerical Solution of II Kind Fredholm Equations: a Naval*

Hydrodynamics Application, **IABEM Symp.**, Roma (Italy) 1990, published in Boundary Integral Methods. Theory and applications, Springer-Verlag, 1991.

[184]   F Lalli, EF Campana, U Bulgarelli, *Numerical Solution of Free Surface Potential Flows*, **Int. Conf. on Industrial and Applied Mathematics (ICIAM)**, Washington D.C. (USA), 1991.

[185]   EF Campana, F Lalli, U Bulgarelli, *Some Numerical Computations about Free Surface Boundary Layer and Surface Tension Effects on Nonlinear Waves*, **5th Int. Conf. on Numerical Ship Hydrodynamics**, Hiroshima (Japan), 1989.