

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
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Professional Rank / Position

Research Director / **Director, CNR: Dept of Engineering, ICT and Technologies for Energy and Transport (CNR-DIITET)**
The Department includes 19 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 Dep. of Engineering, ICT and Technologies for Energy and Transport.
- 2011-2017: **CNR - INSEAN** – Director of the Institute
- 2010: **INSEAN**¹ - Director General
- 2009-2010: **INSEAN** - Research Director, head of all the Departments
- 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

Co-Chair, AVT-253: Assessment of Prediction Methods for Large Amplitude Dynamic Manoeuvres for Naval Vehicles

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.

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

National representative (for 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-ET-180 Sea Dumped Munitions and Environmental Risk
- 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
- AVT-ET-185: Goal-Driven, Multi-Fidelity Approaches for Military Vehicle System-Level Design (TCMSM)

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

- IUTAM (*Int. Union Theoretical and Applied Mechanics*): CNR representative in the IUTAM Italian delegation
- 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).
- **National Technology Clusters (promoted by the Italian Ministry of Education and Research)**
 - **Energy**: member of the Board of administration;
 - **Blue Growth**: Head of the Scientific Committee;
 - **Transport**: member of the Board of administration.

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
- **WATERBORNE Technology Platform**. Vice chair of the Blue Growth working group

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.

Major International / European Research Projects

1) Variable-Physics techniques in Simulation-Based Design for High Speed Waterjet Ship Design

Funding : Office of Naval Research (US Navy), 50%
 Research Program : NICOP
 Duration : 2008-2010
 Participating nations : IT, USA, JP
 Position : Principal Investigator

2) Global Optimization Methods Applied to High-Speed Ship Design

Funding : Office of Naval Research (US Navy), 50%
 Research Program : NICOP (N. 000140510617)
 Duration : 2005-2008
 Participating nations : IT, USA, JP
 Position : Principal Investigator

3) Surface Combatant 5415 capsizing tests for validation of unsteady RANS codes

Funding : Office of Naval Research (US Navy), 50%
Research Program : NICOP (N. 000140410288)
Duration : 2004-2008
Participating nations : IT, USA
Position : Research staff

Funding : Western European Union (WEU - UEO), 50 %
Research Program : CEPA 10
Duration : 1999 - 2003
Participating nations : IT, GR, TK, UK
Position : Project Manager

4) Multiple Criteria CFD-Based Optimization for Ship Design

Funding : Office of Naval Research (US Navy), 50%
Research Program : NICOP (N. 000140210489)
Duration : 2002 - 2005
Participating nations : IT,USA,JP
Position : Principal Investigator

7) Advanced Monohull Concepts: (THALES 10.111)

Funding : Western European Union (WEU - UEO), 100%
Research Program : CEPA 10
Duration : 1999 - 2003
Participating nations : IT, NL, DM
Position : Research staff

6) HULLOPT - Optimal Techniques for Hull Geometry (EUCLID RTP 10.14)

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€)

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

2) Flagship project RITMARE

Funding : *Ministry of Education and Research*
Duration : 2011-2015

3) RESMARE (Ricerca E Sviluppo per il MARE)

Funding : *Lazio Region*
Duration : 2015-2017
Position : Project Manager (Grant: 1.5 M€)

Published Work (stand: September 2017)

Citation 2763
H index 29

Book's chapters

- [1] A Serani, M Diez, EF Campana, G Fasano, D Peri, U lemma, *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 lemma, 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).

- [6] R. Broglia, S. Zaghi, E. F. Campana, T. Dogan, H. Sadat-Hosseini, F. Stern, P. Queutey, M. Visonneau and E. Milanov, *Assessment of Computational Fluid Dynamics Capabilities for the Prediction of Three-Dimensional Separated Flows: The DELFT 372 Catamaran in Static Drift Conditions*, **J. Fluids Eng** 141(9), 091105 (Mar 25, 2019)
- [7] M Diez, R Broglia, D Durante, A Olivieri, EF Campana, F Stern, *Statistical Assessment and Validation of Experimental and Computational Ship Response in Irregular Waves*, **J. of Verification, Validation and Uncertainty Quantification**, vol 3, 021004-1 - 021004-18, June 2018.
- [8] 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).
- [9] 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).
- [10] 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).
- [11] A Serani, G Fasano, G Liuzzi, S Lucidi, U lemma, 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).
- [12] C Leotardi, A Serani, U lemma, 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).
- [13] EF Campana, M Diez, U lemma, 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).
- [14] M Diez, EF Campana, F Stern, "Design-space dimensionality reduction in shape optimization by Karhunen - Loeve Expansion", **Comput. Methods Appl. Mech. Engrg.**, 283, 1525-1544, (2015).
- [15] S Volpi, M Diez, NJ Gaul, H Song, U lemma, 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).
- [16] 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).
- [17] 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).
- [18] 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).
- [19] 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).
- [20] 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).
- [21] 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).
- [22] 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).
- [23] 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)
- [24] 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).
- [25] 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).
- [26] 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).
- [27] 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).
- [28] 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).
- [29] EF Campana, G Fasano, A Pinto, “Dynamic analysis for the selection of parameters and initial population, in particle swarm optimization”, **Journal of Global Optimization**, Vol. 48 (3), 347-397, (2010).
- [30] EF Campana, D Peri, Y Tahara, M Kandasamy, F Stern, “Numerical Optimization Methods for Ship Hydrodynamic Design”, **Transaction SNAME**, Vol. 117, 30-77, (2009).
- [31] 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).
- [32] 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).
- [33] 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).
- [34] 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).
- [35] 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).
- [36] 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).
- [37] A Iafrafi, EF Campana, “Free surface fluctuation behind microbreakers: space-time behavior and subsurface flow field”, **Journal of Fluid Mechanics**, Vol. 529, 311-347, (2005).
- [38] D Peri, EF Campana, R Dattola, “Multidisciplinary Design Optimization of a Frigate”, **Ship Technology Research**, Vol.52, 151-158, (2005).
- [39] A Pinto, D Peri, EF Campana, “Global Optimization Algorithms in Naval Hydrodynamics”, **Ship Technology Research**, Vol.51 (3), 123-123, (2004).
- [40] D Peri, EF Campana, “Multidisciplinary Design Optimization of a Naval Surface Combatant”, **Journal of Ship Research**, Vol.47(1), 1-12, (2003).
- [41] A Iafrafi, EF Campana, “A Domain Decomposition Approach to Compute Breaking Waves”, **Int. Journal for Numerical Methods in Fluids**, Vol. 41 (4), 419-445, (2003).
- [42] M Valorani, D Peri, EF Campana, “Sensitivity Analysis Techniques to Design Optimal Ship Hulls”, **Optimization and Engineering (OPTE)**, Vol. 4 (4), 337-364, (2003).
- [43] 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).
- [44] D Peri, M Rossetti, EF Campana, “Design Optimization of Ship Hulls via CFD Techniques”, **Journal of Ship Research**, Vol. 45(2), 140-149, (2001).
- [45] A Iafrafi, 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).
- [46] A Iafrafi, 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).
- [47] EF Campana, A Carcaterra, E Ciappi, A Iafrafi, “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).
- [48] A Carcaterra, E Ciappi, A Iafrafi, EF Campana, “Shock Spectral Analysis of Elastic Systems Impacting on the Water Surface”, **Journal of Sound and Vibration**, 229 (3), 579-605, (2000).
- [49] A Di Mascio, EF Campana, “Yaw Flow Simulation for the Series 60”, **Ship Technology Research**, Vol.46 (4), 223-229, (1999).
- [50] 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).
- [51] M Landrini, EF Campana, “Steady Waves and Forces About a Yawing Flat Plate”, **Journal of Ship Research**, Vol.40 (3), 179-192, (1996).
- [52] 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).
- [53] 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).
- [54] 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).
- [55] 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)
- [56] 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).
- [57] 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

- [58] D. D'Agostino, A Serani, EF Campana, M Diez, *Deep autoencoder for off-line design-space dimensionality reduction in shape optimization. 56th AIAA Aerospace Sciences Meeting, SciTech 2018, Gaylord Palms, Kissimmee, Florida, USA, January 8-12 (2018)*
- [59] 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.*
- [60] 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*
- [61] A Serani., EF Campana, M Diez., F Stern: *Towards augmented design-space exploration via combined geometry and physics based Karhunen-Loeve expansion., 18th AIAA / ISSMO Multidisciplinary Analysis and Optimization Conference (MA&O), AVIATION 2017, Denver, USA, June 5-9 (2017)*
- [62] D D'Agostino., A Serani, EF Campana, M Diez, *Nonlinear methods for design-space dimensionality reduction in shape optimization. 3rd Int Conference on Machine Learning, Optimization, and Big Data, MOD 2017, Volterra, Italy. (2017).*
- [63] R Pellegrini, U lemma, 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.*
- [64] 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.*
- [65] M Diez, A Serani, F Stern, EF Campana, *Combined geometry and physics based method for design-space dimensionality reduction in hydrodynamic shape optimization, 31th ONR Symp. on Naval Hydrodynamics, Monterey, CA, USA, 11-16 September 2016.*
- [66] R Broglia, M Diez, D Durante, A Olivieri, EF Campana, F Stern, *Statistical Validation of a High-speed Catamaran in Irregular Waves, 31th ONR Symp. on Naval Hydrodynamics, Monterey, CA, USA, 11-16 September 2016.*
- [67] R Pellegrini, U lemma, 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.*
- [68] 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.*
- [69] R Pellegrini, C Leotardi, U lemma, 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.*
- [70] A Serani, EF Campana, F Stern, M Diez, *A multi-objective optimization: effects of potential flow formulation and RANS, 15th Conference on Computer Applications and Information Technology in the Maritime Industries, COMPIT'16, Lecce, Italy, 2016.*
- [71] 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.*
- [72] C Leotardi, EF Campana, M Diez, *On the use of uncertainty quantification in variable-accuracy simulation-based multidisciplinary optimization, 3rd Workshop on Uncertainty Quantification in Computational Fluid Dynamics, Paris (France), 2015.*
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Il sottoscritto Emilio F. Campana, consapevole che le dichiarazioni false comportano l'applicazione delle sanzioni penali previste dall'art. 76 del D.P.R. 445/2000, dichiara che le informazioni riportate nel curriculum vitae, corrispondono a verità.