18TH INTERNATIONAL CONFERENCE ON SHIPS AND SHIPPING RESEARCH
TIME SCHEDULE AND PROGRAM

The event is held under the patronage of:

MARINA MILITARE

POLITECNICO DI MILANO
ATENA
POLO TERRITORIALE DI LECCO
Scuola Politecnica Università degli Studi di Genova
NAV 2015 – Time schedule

Wednesday, 24th June 2015  
Campus of Lecco Branch of Politecnico di Milano  
Main Hall

08.00 - 09.00  Registration
09.00 - 10.30  Conference Opening  
Welcome addresses

10.30 Coffee break

11.00 - 13.00  Workshops

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<tr>
<th>Room A 1.1</th>
<th>Room B 0.1</th>
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<tr>
<td>Fisheries &amp; Aquaculture</td>
<td>Maritime Renewable Energies</td>
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Conference Rooms
11.00 – 13.00 Technical Sessions

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<th>Room B 1.1</th>
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<tr>
<td>Warship Design and Technology I</td>
<td>Conceptual and Practical Ship Design</td>
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13.00 – 14.00 Buffet Lunch

14.00 - 18.30  Workshop:  
Room B 0.1  More Efficient & Greener Ships

Conference Rooms
14.00 – 16.00 Technical Sessions

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<th>Room B 1.1</th>
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<td>Warship Design and Technology II</td>
<td>Maritime Sustainability</td>
<td>Human Factor and Comfort Onboard</td>
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16.00 Coffee break

Conference Rooms
16.30 – 18.30 Technical Sessions

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<th>Room B 1.1</th>
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<td>Offshore Vessels and Floating Plants</td>
<td>Maritime Economics and Logistics</td>
<td>Aesthetic and Interior Design of Passenger Ships</td>
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</table>
Thursday, 25th June 2015  
Campus of Lecco Branch of Politecnico di Milano

09.00 - 12.30 Workshops:  
Room B 0.1  
LNG: where we are?  
Room A 1.1  
MOSAIC - Materials Onboard: Steel Advancement and Integrated Composites

Conference Rooms  
09.00 – 10.30 Technical Sessions

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<th>Room B 1.5</th>
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<tr>
<td>Ship Energy Efficiency I</td>
<td>Seakeeping, Stability and Maneuverability I</td>
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10.30 Coffee Break

Conference Rooms  
10.30 – 12.30 Technical Sessions

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12.30 Buffet Lunch

13.30 -22.30

13.30 departure for visit to EXPO 2015

19.30 Conference Dinner  
at Cascina Triulza
**Friday, 26th June 2015**

*Campus of Lecco Branch of Politecnico di Milano*

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<tr>
<th>Time</th>
<th>Event Description</th>
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<tr>
<td>09.00 - 18.00</td>
<td>Symposium on <em>Advance Solutions for Yacht Efficiency</em></td>
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Conference Opening and Invited speeches

Wednesday, 24th June 2015
Time: 08.30 – 10.30
Campus of Lecco Branch of Politecnico di Milano – Room A

Registration
Welcome addresses

- Prof. Marco Bocciolone, dean of Lecco Branch of Politecnico di Milano
- Dr. Vico Valassi, chairman of Lecco Chamber of Commerce
- Prof. Aristide Massardo, dean of Politechnic School of University of Genoa
- Adm. Stefano Tortora, Head of Maritime Engineers Officers Corps, Italian Navy

Invited speech:
Massimo Debenedetti, Vice President Research and Innovation, Fincantieri
Research & Innovation in the ship building industry: Fincantieri’s approach

Alessandro Panaro, Head of Maritime and Mediterranean Economy, SRM
The Maritime Relations between Italy and Mediterranean area: the shocking phenomena

Time: 10.30 - Coffee Break
Wednesday, 24th June 2015
Time: 11.00 – 18.00
Room B 1.1

Warship Design & Technology I

Chairperson: Stefano Tortora, Italian Navy

The new Italian Navy shipbuilding program: an innovative approach to naval design
Sergio Simone

A distributed simulation framework for naval operations’ assessment
Davide Tozzi, Sergio Simone

Design of a modular Mission Bay for a multirole patrol vessel
Albino Grimaldi

Interceptor device for a high-speed displacing craft (comparison between CFD simulation and experimental data)
Fabio De Luca, Simone Mancini, Andrea Manfredini, Claudio Pensà, Raffaele Scognamiglio

The influence of the operational scenarios on the propulsion system selection in the preliminary naval ship design
Arcangelo Menna, Francesco Perra, Marco Altosole, Massimo Figari, Federica Piastra

Operational effectiveness trade-offs analysis in the preliminary naval ship design
Fabio Troiano, Francesco Perra, Aldo Guagnano, Francesco Taddei

An overview of innovative technologies onboard Italian Navy ships for a more efficient platform system and electrical plant operation
Teresa Mazzucca, Michele Torre

13.00 Buffet Lunch
Warship Design & Technology II

Chairperson: Stefano Tortora, Italian Navy

Time: 14.00 – 16.00

A new concept of a very high speed craft: design issues
Carlo Podenzana Bonvino, Marco Ferrando, Stefano Gaggero, Diego Villa, Davide De Mitri, Cristina Gironi

A numerical method to predict far field noise from naval propellers
Erica Firenze, Federica Valdenazzi, Ottavio Pinto

Wall pressure models for self noise prediction
Elena Ciappi

Operational effectiveness, functions and naval tasks: a multi-dimensional environment for the definition of naval units
Francesco Perra, Paola Gualeni, Massimo Paolucci, Fabrizio Bracco, Eva Riccomagno, Francesco Lupi, Marco De Luca, Aldo Guagnano, Francesco Taddei, Ivan Santic

Unified trade-off environment: a listening to experts opinion in the preliminary warship design
Ivan Santic, Paola Gualeni, Francesco Perra

16.00 – Coffee Break

Offshore Vessels & Floating Plants

Chairperson: Roberto Faldini, Saipem

Time: 16.30 – 18.00

“Overdrill” and “Proxima”: innovative ultra deep water drillship designs
Gianni Scherl, Luca Ambrosio

Smart thrust allocation procedures in early design stage dynamic positioning predictions
Francesco Mauro, Radoslav Nabergoj

Wave grouping identification from vessel response
Federico Gaggiotti, Fabio Dezi, Roberto Bruschi, Giulia De Masi

Ice property measurement campaign in the North Caspian Sea
Andrea Cijan, Silvio Stenta, Emanuele Putorti, Islam Yermekov
Conceptual and Practical Ship Design

Chairperson: Paola Gualeni, University of Genoa, Italy

Time: 11.00 – 13.00

Hydrodynamic ship design optimization considering uncertainty
Emilio F. Campana, Frederick Stern, Matteo Diez

MONOTRICAT® Hull, first displacement naval hull navigating at speeds of planning hulls, on spray self-produced, at high hydrodynamic efficiency and energy recovery
Luigi Mascellaro, Lilit Axner, Jing Gong

Multipurpose air cushion platform
Angelo Odetti, Marco Mastrangeli

Four point bend test to define the mechanical properties on thermally toughened laminated glass for marine application
Carlo Dellabianca, Christian Piola, Simone Parizzi, Marco Martinelli

Conceptual and practical design of a hospital ship – An architectural approach of a conversion from ferry
Andreas Tsokos Pappas, Stavros Giftopoulos, Thomas Mazarakos

13.00 Buffet Lunch
Maritime Sustainability  
**Chairperson:** Carlo Podenzana Bonvino, University of Genoa, Italy

- Measurement of underwater radiated noise from merchant vessels and related issues  
  *Francesco De Lorenzo, Ruggero Dambra*

- Sound propagation at sea: a parametric investigation  
  *Donatella Tamà, Tomaso Gaggero, Enrico Rizzuto*

- Predicting life cycle cost of a modular frigates fleet  
  *Alfonso Barbato, Alessandro Bonvicini*

- Retrofit: from selection of technologies to regulatory framework  
  *Raimonds Aronietis, Koos Frouws, Hilde Meersman, Christa Sys, Eddy Van De Voorde, Thierry Vanelslander*

- Fostering sustainable maritime transport within the EU-Work Status At The European Sustainable Shipping Forum, ESSF  
  *Panos Yannoulis*

- LNG as ship fuel: the reasons of a choice  
  *Ernesto Fasano*

16.00 – Coffee Break

Maritime Economics & Logistics  
**Chairperson:** Alessandro Panaro, Head of Maritime and Mediterranean Economy, SRM, Italy

- Consequences of applying a bunker adjustment factor  
  *Hilde Meersman, Yasmine Rashed, Christa Sys, Eddy Van De Voorde, Thierry Vanelslander*

- The procurement challenges surrounding the acquisition of high-speed military and government boats in the 21st century  
  *Bob MacDonald*

- A preliminary approach for establishing a new toll calculation method for transiting the Suez Canal oil tankers  
  *Maged Abdel Naby, Adel Banawan*

- Analysis of the handling capacity of liquid cargo terminals using the Awesim modeling program  
  *Özkan Uğurlu, Umut Yıldırım, Ercan Yüksekyıldız, Serdar Yıldız*

- Forecasting model of port cargo handling capacity, a case study: Trabzon, Samsun, Rize and Hopa ports  
  *Ercan Yüksekyıldız, Muhammet Boran, Özkan Uğurlu, Umut Yıldırım, Serdar Yıldız*

- A value chain analysis of emerging maritime technology clusters in Nigeria  
  *Chinedum Onyemechi, Abiodun Sule, Chinemerem Igboanusi*
Wednesday, 24TH June 2015
Time: 14.00 – 18.00
Room A 1.1

Human Factor & Comfort On Board

Chairperson: Enrico Rizzuto, University of Genoa, Italy

Time: 14.00 – 16.00

Crew – An effective approach to scheme of complement and workload estimation on military Ships
Andrea Lommi, Pierpaolo Rube

Computerized assessment of seafarers’ functional status on board
Giedrius Varoneckas, Arvydas Martinkenas, Jurgita Andruskiene, Albinas Stankus, Lina Mazrimaite, Aurelija Livens

Numerical evaluation of reverberation time in public spaces on cruise ships
Francesco De Lorenzo, Daniele Russi

Experimental investigation on the damping coefficient of laminated glass for large yachts windows
Lisa Gragnani, Angelo Tonelli, Dario Boote, Tatiana Pais

High-speed boats – How to design cockpits, consoles and dashboards for better control, safety and comfort
Johan Ullman

Human performance at sea: stress management for efficient shipping - SOS project
Taner Albayrak, Davide Stasi

16.00 – Coffee Break

Aesthetic & Interior Design of Passenger Ships

Chairperson: Silvia Piardi, Politecnico di Milano

Time: 16.30 – 18.00

A praise of slowness: “Slow Cruising” opens new frontiers in yacht design interiors
Massimo Musio Sale, Valentina Solera

Passenger cabins on cruise ships: modularity, design and comfort
Maria Carola Morozzo Della Rocca

The liners: evolution and formal typology
Enrico Tommaso Carassale

Public areas of cruise ships
Mario Ivan Zignego

Exercises in style
Silvia Piardi, Angelica Paiva Poncio
Thursday, 25th June 2015  
Time: 9.00 – 12.30  
Room B 1.5

**Ship Energy Efficiency I**  
**Chairperson:** Alberto Gauzolino, Italian Navy  

**Calculation of optimum trim based on bow and stern shape functions**  
*Tom Dinham Peren*

**Energy efficient operation of bulk carriers by trim optimization**  
*Moustafa Mohammed Moustafa, Waleed Yehia Ali, Arwa Wafiq Hussain*

**Contemporary model testing to comply with the IMO EEDI verification process**  
*Anton Minchev*

**Monitoring, analyzing and improving ship propulsive performances: a support system to ship management in an energy efficiency perspective**  
*Giovanni Cusano, Mauro Garbarino, Stefano Qualich, Giuseppe Stranieri*

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10.30 – Coffee Break

**Ship Energy Efficiency II**  
**Chairperson:** Alberto Gauzolino, Italian Navy  

**Marine fuel quality, value and challenges for 2015 and beyond**  
*Ian Crutchley*

**Identifying added shaft power in weather from voyage analysis of a RORO carrier**  
*Angus Webb, Dominic Hudson*

**Ship performances forecasting at the Mediterranean scale: evaluation of the impact of MeteOcean forecasts on fuel savings for energy efficiency and weather routing**  
*Andrea Orlandi, Luca Rovai, Valerio Capecchi, Stefano Romanelli, Riccardo Benedetti, Andrea Coraddu, Diego Villa*

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12.30 Buffet Lunch
Thursday, 25th June 2015
Time: 9.00 – 12.30
Room B 1.1

Seakeeping, Stability & Manoeuvrability I

Chairperson: Alberto Francescutto, University of Trieste

The effect of forward speed on nonlinear ship motion responses
Olgun Guven Hizir, Zhiming Yuan, Atilla Incecik, Osman Turan

Prediction tool for preliminary design assessment of manouevring characteristics of a twin screw displacement yacht
Roberto Tonelli, Enrico Della Valentina, Frans Quadvliet

Prediction of dynamic loads in towing systems
Radoslav Nabergoj, Loris Cok, Emanuele Putorti

10.30 – Coffee Break

Seakeeping, Stability & Manoeuvrability II

Chairperson: Alberto Francescutto, University of Trieste

A numerical investigation of the squat and resistance of ships advancing through a canal using CFD
Tahsin Tezdogan, Atilla Incecik, Osman Turan

Numerical prediction of hull force for low velocity manouevring
Dario Bruzzone, Danilo Ruscelli, Diego Villa, Michele Viviani

Random decrement method: ship roll damping identification based on response in a seaway
Andrea Del Guzzo, Francesco Di Tomaso, Irene Renzi, Federico Gaggiotti, Roberto Bruschi

12.30 - Buffet Lunch
13.30 - Social Event & Gala Dinner
**Friday, 26th June 2015**
**Time:** 9.00 – 16.30
**Room B 1.1**

**Numerical & Experimental Hydrodynamics I**
**Time:** 09.00 – 10.30

*Chairperson: Alexandre Pustoshny, Krylov Institute, Russia*

- Repeatability estimation of torque and thrust results in open water tests as a function of the Reynolds number
  *Alessandro Moriconi, Andrea Mancini*

- Application of uncertainty analysis for measurement of added resistance in regular short waves
  *Naoto Sogihara, Masaru Tsujimoto, Yoshikazu Kasahara, Ryohei Fukasawa, Tatsuya Hamada*

- Numerical study of unsteady breaking waves induced by a submerged hydrofoil at steady forward speed
  *Giorgio Contento, Guido Lupieri, Hrvoje Jasak, Vuko Vukčević*

- MWM: a 35 years wind & wave high resolution hindcast dataset and an operational forecast service for the Mediterranean sea
  *Luca Donatini, Guido Lupieri, Giorgio Contento, Andrea Pedroncini, Luis Alberto Cusati, Andrea Crosta*

**10.30 – Coffee Break**

**Numerical & Experimental Hydrodynamics II**
**Time:** 11.00 – 13.00

*Chairperson: Alexandre Pustoshny, Krylov Institute, Russia*

- Resistance and propulsion of an icebreaking vessel in ultra-shallow water
  *Giorgio Trincas, Silvio Stente, Giuseppe Repole*

- Virtual PMM and free running manoeuvring predictions of a submarine by CFD
  *Giulio Dubbioso, Stefano Zaghi, Riccardo Broglia, Maurizio Cannarozzo*

- Nonlinear free surface potential flow simulations for hulls with a transom stern operating in dry and wet conditions
  *Andrea Mola, Luca Heltai, Antonio De Simone*

- Viscous flow computations for a large water tunnel
  *Ahmet Gürkan, Gürbüz Bilici, Uğur Oral Ünal*

- Hydrodynamic analysis of a catamaran in calm water and in waves
  *Teresa Castiglione, Sergio Bova*

- Numerical and experimental investigation on the wave-wave interaction in breaking and non-breaking focusing waves
  *Guido Lupieri, Thomas Puzzer, Giorgio Contento, Luca Donatini, Lorenzo Cappietti*
Numerical & Experimental Hydrodynamics III

Chairperson: Marcelo Santos Neves, Federal University of Rio de Janeiro, Brazil

Friday, 26^{TH} June 2015
Time: 9.00 – 16.30
Room B 1.1

Fluid-structure interactions during the high speed water entry of a plate
_Alessandro Iafrati_

Study and experiments on the hull resistance reduction by air ventilation in calm water for semi-displacement hulls
_Andrea Agrusta, Dario Bruzzone, Igor Zotti_

An open source framework for CFD optimization: the case of sailing yacht daggerboards
_Giovanni Bailardi, Joel E. Guerrero_

Determination of VDV and MSI for modern planing craft
_Ermina Begovic, Silvia Pennino, Vincenzo Piscopo, Antonio Scamardella_
Ship Propulsion & Machinery I

**Chairperson:** Gian Piero Repetti, Vulkan Italia

**Time:** 09.00 – 10.30

- Advancement in propulsion technology
  *Elias Boletis, Albert Drost, Norbert Bulten*

- Diesel engines operating in Artic and Tropic fields
  *Paolo Calcinotto, Mathias Björklund*

- Evaluation of the efficiency of a vibrating propulsion system for marine vessels, Part I: Physical mathematical models
  *Roberto Muscia*

- Evaluation of the efficiency of a vibrating propulsion system for marine vessels, Part II: Integration of motion equations and performances
  *Roberto Muscia*

**10.30 – Coffee Break**

Ship Propulsion & Machinery II

**Chairperson:** Gian Piero Repetti, Vulkan Italia

**Time:** 11.00 – 13.00

- A high safety and efficiency rudder actuation based on servo-controlled fluidic muscles
  *Enrico Ravina, Francesca Bertesago*

- Transparency within automated engine control systems: the case of the Savannah Express
  *Monica Lundh, Scott N. MacKinnon, Yemao Man*

- Cold flow simulation of an internal combustion engines with canted valves for Tug boats using hybrid approach
  *George Martinaş, Ovidiu Sorin Cupsa, Nicolae Buzbuchi*

- Artificial air cavity as energy saving technology
  *Alexander Pustoshny, Andrey Sverchkov, Loris Cok, Giorgio Trincas, Pierluigi Busetto*

- Comparison of waste heat recovery systems for the refitting of a cruise ferry
  *Giovanni Benvenuto, Ugo Campora, Michele Laviola, Raphael Zaccone*

**13.00 Buffet Lunch**
**Structural Design**

**Chairperson:** Eugenio Gugliemino, University of Messina

**Experimental investigation of FCAW-G weldments of HSLA AH40-FCA (Fatigue Crack Arrester) steel, used in marine applications**  
*Marios Kazasidis, Stavros Chionopoulos, Dimitrios Pantelis*

**Influence of sea state models on calculated naval vessel stress spectra**  
*Ian Thompson*

**Fatigue strength analysis of longitudinal bulkheads of passenger ships with large openings**  
*Giovanni Risso, Carlo Cau, Yordan Garbatov, Carlos Guedes Soares*

**Numerical assessment of fatigue crack growth in high stress concentration areas of an Aframax tanker, using AH36 and HSLA steels**  
*Elias V. Chatzidouros, Dimitris I. Pantelis*

**Low-cycle fatigue life prediction of fillet-welded joints in ship details**  
*Pasqualino Corigliano, Vincenzo Crupi, Wolfgang Fricke, Eugenio Guglielmino*
Ship Management, Safety & Security I

Chairperson: Maurizio D’Amico, Società d’Amico di Navigazione

Time: 09.00 – 10.30

Distribution and display of maritime safety information in an E-Navigation context
*Thomas Porathe, Mads Bentzen Billesø, Ole Borup, Peder Pedersen*

The evolution of safety management on board cruise ships
*Sandro Stefani, Vittorio De Val*

Biometrics for electronic mustering and other emergencies
*Sergio Bisiani, Daniele Protti*

10.30 Coffee Break

Ship Management, Safety & Security II

Chairperson: Maurizio D’Amico, Società d’Amico di Navigazione

Time: 11.00 – 13.00

Statistic of still water bending moment of damaged Suezmax oil tanker
*Branka Bužančić Primorac, Vedran Slapničar, Ivan Munić, Vjekoslav Grubišić, Maro Ćorak, Joško Parunov*

Cost-utility analysis of ballast water treatment system market
*Vivart Kapoor*

Innovative tools for the advanced evacuation analysis of passenger ships
*Vittorio Bucci, Alberto Marinò, Giorgio Trincas, Giovanni Zanutto*

Self-moving units for inspection tasks of marine structures and plants
*Enrico Ravina*

Command and control of unmanned vessels: keeping shore based operators in-the-loop
*Scott N. Mackinnon, Yemao Man, Monica Lundh, Thomas Porathe*

13.00 Buffet Lunch
Fishing Vessel

**Chairperson:** Gaetano Messina, ATENA-Marche

- **Retrofit of a 42 m length trawler propulsive system**
  *Sophie Coache, Jean Marc Laurens*

- **Reverse engineering techniques for trawler hull 3D modelling and energy efficiency evaluation**
  *Anna Nora Tassetti, Michele Martelli, Gabriele Buglioni*

- **An economical onboard liquid ice system for fishing vessels by recovery of waste energy**
  *Claudio Fontana, Vassilios K. Zagkas*

Inland Navigation

**Chairperson:** Marcello Coppola, Navigazione Laghi

- **Overview of European inland navigation**
  *Dino Telesca*

- **2004-2014 ten years of changing in the project of passenger ferries on Italian lakes, due to the 2006/87/CE and consequent rules**
  *Valerio Ruggiero*

- **Dry-dock hull inspection of Nile cruisers**
  *Arwa. W. Hussein, Moustafa Mohammed Moustafa, M. T.Elsherbiny*

- **The new hybrid small passenger vessel for the Venice lagoon**
  *Vittorio Bucci, Alberto Marinò, Andrea Businaro*
NAV 2015 Organization

ORGANISING COMMITTEE

- Bruno Della Loggia (ATENA President) – Chairman
- Marco Altosole (University of Genoa) – Conference Secretary
- Andrea Ratti (Technical University of Milan) – Local Organizer
- Pietro Canepa (ATENA Genoa branch) – Conference Accountant
- Dino Telesca (ATENA – Inland Navigation Group)
- Enrico Rizzuto (University of Genoa)
- Enrico Ravina (University of Genoa)
- Silvia Donnarumma (University of Genoa)
- Fabio Fossati (Technical University of Milan)

ABOUT NAV CONFERENCES

The Conferences were initiated in 1974 as “Scientific Conference of Gruppo Automazione Navale e Problemi delle Grandi Navi”, to be held every two years under the patronage of CETENA and the Italian CNR – National Research Council. In 1980, CETENA and ATENA entered into a co-operation agreement and the name of the Conference was changed to NAV. This arrangement was maintained until 1994, after when the frequency of meetings was changed to once every three years. The focus remained on convening a forum for the maritime scientific and technical community all over the world. NAV 2015 in Lecco is the 18th Conference, previous ones having been held all over Italy, specifically in: Rome (1974), Naples (1976), Trieste (1978), Genoa (1980), Naples (1982), Venice (1984), Palermo (1986), Trieste (1988), Ancona (1990), Genoa (1992), Rome (1994), Sorrento (1997), Venice (2000), Palermo (2003), Genoa (2006), Messina (2009), Naples (2012).

Special thanks go to the Academic Authorities, Industry, Technical and Professional Offices whose generous contributions made this event possible.

INTERNATIONAL SCIENTIFIC COMMITTEE

An international committee, chaired by Prof. Alberto Francescutto from the University of Trieste, was established with the participation of representatives of international academic institutions and relevant industry sectors. About 130 abstracts were submitted for the critical consideration of the tracking administrators and the paper reviewers. Then, the selected papers were subject to the final review and recommendations from the reviewers. The high scientific value of the papers presented to NAV 2015 has therefore been amply assured.

ABOUT ATENA

ATENA, the Italian Association of Naval Technology was founded in 1948 as cultural non-profit organization by the Italian College of Naval and Mechanical Engineers in Genoa. The association aims to promote maritime culture, disseminate the latest scientific and technical findings in naval engineering and offshore industries, and encourage developments in related fields. The Association pursues its statutory objectives through publications (journals, magazines, newspapers, websites, social media, etc.) as well as through the organization of congresses, conferences, workshops and technical committees for the study of specific problems and implementation of specific programs. Its members contribute professionally to design, construction and operation of all kinds of marine craft, with a focus on transport safety and protection of marine environment. Currently ATENA has about 700 members, including engineer, teachers, researchers, ship owners, classification societies, etc. with a presence in almost all Italian regions that have a significant maritime sector. All persons interested in participating in ATENA’s activities and supporting the Association’s objective can apply to join as members. Through the spirit of collegiality and friendship, ATENA works to keep alive the multidisciplinary nature of marine knowledge.
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