

CURRICULUM OF SCIENTIFIC AND TEACHING ACTIVITIES OF PIETRO SCANDURA

EDUCATION

He graduated with honours in **Civil Engineering** (110/110 cum laude) from the University of Catania in 1992.

In 1999, he obtained his **PhD** from the University of Naples Federico II with a thesis entitled: “Dynamics of the boundary layer at the bottom of a sea wave in the presence of ripples”.

PROFESSIONAL QUALIFICATIONS

He is qualified to practise as an engineer.

SCIENTIFIC QUALIFICATION

Qualified as full professor in the sector 08/A1 - Hydraulics, Hydrology, Hydraulic and Maritime Engineering.

ACADEMIC POSITIONS HELD

From April 2000 to 30 September 2001, he was a Research Fellow at the Department of Civil and Environmental Engineering of the University of Catania.

From 2001 to 2014, he held the position of Researcher in the scientific-disciplinary field ICAR/01 (Hydraulics) at the Department of Civil and Environmental Engineering of the University of Catania.

Since November 2014, he has held the position of Associate Professor in the scientific-disciplinary field ICAR/01 (Hydraulics) or CEAR-01/A since May 2024.

SCIENTIFIC ACTIVITY

Scientific interests include various topics in theoretical and applied fluid mechanics. The topics covered include: boundary layer dynamics at the bottom of sea waves, turbulence modelling, interaction of oscillating flows with cylindrical structures, steady currents generated by the propagation of surface waves, hydrodynamics generated by breaking waves, oscillating flows on rough walls, oscillating water column wave energy converters, interaction of waves with coastal structures, dynamics of magnetic nanoparticles in a laminar flow and subject to a magnetic field, effect of a surface roughness on a turbulent flow, efficiency tests on tidal turbines using both experimental and numerical methods.

These research topics were developed using a variety of techniques.

- **Numerical models** specifically developed for direct numerical simulation (DNS) of turbulent flows.

- **Numerical models** for two-dimensional flows based on the vorticity-streamfunction formulation.
- **Semi-analytical mathematical models** specifically developed for the study of steady currents generated by sea waves, for modelling the forces induced by wave motion on the gate of a navigation lock, and for modelling an oscillating water column wave energy converter.
- **Laboratory experiments** at large-scale using CIEM wave flume (Universitat Politècnica de Catalunya, Spain) and the Aberdeen Oscillatory Flow Tunnel (AOFT) (University of Aberdeen, UK), and at intermediate scale using the wave-flume in the Hydraulic laboratory of the University of Catania and the wind tunnel in the Mechanical Engineering laboratory of the University of Catania.

Stays at foreign scientific institutions

During his career, he has spent several periods working at foreign scientific institutions.

From August 1997 to September 1997, he was a visiting PhD student at the School of Mathematics at the **University of Bristol** (United Kingdom).

From June to August 1999, he was a visiting researcher at the Department of Oceanography of the **Naval Postgraduate School** (California, USA).

From June 2001 to July 2001, he was a visiting researcher at the Department of Hydrodynamics and Water Resources (ISVA) at the **Technical University of Denmark** (Denmark).

Between 2008 and 2009, he spent 45 days at the **Universitat Politècnica de Catalunya** (Spain) as scientific director of the research project “Measurements of stationary currents induced by waves outside the breaking zone”, funded by the European Union under the 6th Framework Programme, through funding from the 'HYDRALAB III integrated infrastructure', as part of transnational access activities (contract 022441 (RII3)).

From May 2015 to June 2015, he was an honorary researcher fellow at the Faculty of Engineering of the **University of Aberdeen** (United Kingdom). During this period, he held a seminar for teachers and students on the characteristics of turbulence in the boundary layer at the bottom of asymmetric sea waves. Seminar title: ‘Numerical investigation of oscillatory flow with asymmetric acceleration’.

In June 2017, he conducted experimental research at the **Universitat Politècnica de Catalunya** as part of the research project “HYBRID: Hydrodynamics of breaking waves over a rigidised bar”, funded by the European Union's Horizon 2020 programme through the HYDRALAB + integrated infrastructure project.

From June 2019 to July 2019, he was a Visiting Researcher at the School of Engineering at the **University of Aberdeen** (United Kingdom).

Reviewer and editorial activity

Since December 2013, he has been Associate Editor of the international scientific journal **Advances in Mechanical Engineering** (SAGE).

He is a member of the Editorial Board of the Journal of **Marine Science and Engineering** (MDPI Publisher), **Marine Energy** sector.

He was **Guest Editor** of the journal Marine Science and Engineering (JMSE) for the Special Issue Hydro-Morphodynamics of Coastal Areas (MDPI Publisher). https://www.mdpi.com/journal/jmse/special_issues/morphodynamics_coastal_areas.

He is currently **Co-Guest Editor** for the journal ‘Marine Science and Engineering’, for the Special Issue ‘Physical Processes Governing the Marine Environment’.

He collaborates and has collaborated as a reviewer with several scientific journals, including:

Journal of Fluid Mechanics; Physics of Fluids; Coastal Engineering; Applied Ocean Research; Journal of Waterways, Ports, Coastal and Ocean Engineering; Advances in Mechanical Engineering; Journal of Marine Science and Engineering; Proceedings of the Royal Society; Journal of Geophysical Research: Earth Surface; Journal of Geophysical Research: Oceans; Catena; Water Resources Management; Water; Asian Journal of Control; Computer and Fluids; Mathematical Problems in Engineering; Journal of Environmental Science; Urban Water; European Journal of Mechanics B/Fluids; Journal of Hydraulic Research; Journal of Fluids and Structures; Meccanica; Case Studies in Thermal Engineering; Atmosphere; Applied Sciences; Estuarine Coastal and Shelf Science; Open Physics; Sensors; Sustainability, Earth Surface Processes and Landform.

Participation in research projects and research groups

1. Head of Local Unit of the Project of National Interest (PRIN) SMART “Sea wave energy converters and MARine Tidal turbines”, funded by the National Recovery and Resilience Plan (PNRR), Mission 4 'Education and Research' - Component C2 Investment 1.1, “Fund for the National Research Programme and Projects of National Interest (PRIN)”. Project start date 30/11/2023. Duration 2 years. In addition to the University of Catania, the project involves the Polytechnic University of Bari, the University of Calabria, the Mediterranean University of Reggio Calabria and the University of Naples Federico II. Project amount €47,500.

Research products

Scandura, P., Messina, M., Mauro, S., Brusca, S. 2025 Fluid-Dynamic design of a small scale Tidal Turbine for Laboratory testing. Offshore Energy & Storage Symposium (OSES 2025), July 16-18 2025, Bari, Italy.

Scandura, P., Mauro S., Michele M., Brusca, S. 2026 Numerical Simulations and Experimental Tests for Tailored Tidal Turbine Design. *Journal of Marine Science and Engineering*, 14, 236, MDPI, <https://doi.org/10.3390/jmse14030236>.

2. In 2020, he established a research group comprising researchers from the following institutions: Universitat Politècnica de Catalunya (Spain), the University of Aberdeen (UK) and the University of Salerno (Italy). The group aims to obtain detailed information on the hydrodynamics of breaking waves using SPH (smoothed particle hydrodynamics) numerical methods. The group has presented its research results at several international conferences and published them in academic journals.

Research products

Altomare, C., **Scandura, P.**, Cáceres, I., van der A, D.A., Viccione, G. 2023 Large-scale wave breaking over a barred beach: SPH numerical simulation and comparison with experiments. *Coastal Engineering* 185, 104362.

Scandura, P., Altomare, C., Cáceres, I., Viccione, G., van der A, D.A. 2024 SPH simulation of wave breaking over a barred beach. 38th International Conference on Coastal Engineering, 8-14 September, Roma.

3. In 2020, he established a research group comprising scientists from the University of Reggio Calabria (UNIRC) to develop and evaluate a mathematical model capable of simulating the dynamics of an oscillating water column wave energy converter, including the impact of various nonlinearities.

Research product

Scandura, P., Malara, G., Arena, F. 2021 The inclusion of non-linearities in a mathematical model for U-Oscillating Water Column wave energy converters. *Energy*, vol. 218, 119320, ISSN: 0360-5442, doi: 10.1016/j.energy.2020.119320.

4. Participation in the research project entitled: HYBRID “Hydrodynamics and turbulence under breaking waves” supported by the European Horizon 2020 programme through funding for the “Integrated infrastructure initiative” HYDRALAB+, Contract no. 654110. The group participating in this project consisted of researchers from the following scientific institutions: University of Aberdeen (United Kingdom), University of Liverpool (United Kingdom), University of Catania (Italy), University of Messina (Italy), University of Hull (United Kingdom), Centre National de la Recherche Scientifique (France), University of Grenoble (France), Utrecht University (Netherlands), Technical University of Denmark (Denmark). The aim of the project was to obtain high spatial and temporal resolution data on the hydrodynamics generated by large-scale breaking waves, both along the water column and in the boundary layer.

Research products

van der Zanden, J., van der A, D.A., Cáceres, I., Larsen, B.E. Fromant, G., Petrotta, C., **Scandura, P.**, Li, M. 2019 Spatial and temporal distributions of turbulence under bichromatic breaking waves. *Coastal Engineering*, vol. 146, pp. 65-80, ISSN: 0378-3839, doi: 10.1016/j.coastaleng.2019.01.006.

Scandura, P., van der A, D. A., van der Zanden, J., Petrotta, C., Faraci, C., Cooper, J., Clark, S., Eltard Larsen, B., Carstensen, S., Fuhrman, D.R., Cáceres, I., McLelland, S., Fromant, G., Hurther, D., Ruessink, G., Brinkkemper, J., Li, M., 2018. Hydrodynamics under large-scale waves breaking over a barred beach. Proceedings of the 7th International Conference on the Application of Physical Modelling in Coastal and Port Engineering and Science (Coastlab18). Santander, Spain, May 22-26, 2018.

5. In 2015, he established a research group comprising academics from the University of Aberdeen (UK) with the aim of improving our understanding of the characteristics of turbulent flow generated in the boundary layer at the bottom of sea waves.

Research products

van der A, D.A., **Scandura, P.**, O'Donoghue, T. 2018 Turbulence statistics in smooth wall oscillatory boundary layer flow. *Journal of Fluid Mechanics*, vol. 849, pp. 192-230, ISSN: 0022-1120, doi: 10.1017/jfm.2018.403.

Dunbar, D., van der A, D.A., **Scandura, P.**, O'Donoghue, T. 2023 An experimental and numerical study of turbulent oscillatory flow over an irregular rough wall. *Journal of Fluid Mechanics*, 955, art. no. A33, doi: 10.1017/jfm.2022.1090.

Dunbar, D., van der A, D.A., O'Donoghue, T., **Scandura, P.** 2023 An empirical model for velocity in rough turbulent oscillatory boundary layers: *Coastal Engineering*, 179, art. no. 104242, doi: 10.1016/j.coastaleng.2022.104242.

6. Participation in the European Project 'Hydralab Plus', which aimed to address the challenges of climate change. The project focused on developing environmental hydraulic modelling to address urgent technical challenges associated with this adaptation. Funded by the European Commission under the Horizon 2020 programme (call H2020-INFRAIA-2014-2015, topic INFRAIA-1-2014-2015, action type RIA), the project was carried out by a consortium of partners from across Europe.

Research products

Cavallaro, P., Iuppa, C., **Scandura, P.**, Foti, E. 2018 Wave load on a navigation lock sliding gate. *Ocean Engineering*, vol. 154, pp. 298-310, ISSN: 0029-8018, doi: 10.1016/j.oceaneng.2018.02.023.

Faraci, C., **Scandura, P.**, Musumeci, R.E., Foti, E. 2018 Waves plus currents crossing at a right angle: near-bed velocity statistics. *Journal of Hydraulic Research*, vol. 56, pp. 464-481, ISSN: 0022-1686, doi: 10.1080/00221686.2017.1397557.

7. Scientific Research Programme of National Interest (PRIN) 2012: 'Modelling of coastal hydromorphodynamic processes for engineering applications'.

Research products

Faraci, C., **Scandura, P.**, Foti, E., 2014. Bottom profile evolution of a perched nourished beach. *Journal of Waterway Port Coastal and Ocean Engineering-ASCE*, vol.140, ISSN: 0733-950X, doi: 10.1061/(ASCE)WW.1943-5460.0000253.

Faraci, C., **Scandura, P.**, Foti, E., 2015. Reflection of Sea Waves by Combined Caissons. *Journal of Waterway Port Coastal and Ocean Engineering-ASCE*, vol. 141, ISSN: 0733-950X, doi: 10.1061/(ASCE)WW.1943-5460.0000275.

Scandura, P., Faraci, C., Foti, E., 2016. A numerical investigation of acceleration-skewed oscillatory flows. *Journal of Fluid Mechanics*, vol. 808, pp. 576-613, ISSN: 0022-1120, doi: 10.1017/jfm.2016.641.

Petrotta, C., Faraci, C., **Scandura, P.**, Foti E. 2018 Experimental investigation on sea ripple evolution over sloping beaches. *Ocean Dynamics* **68**, 1221–1237 (2018). doi: 10.1007/s10236-018-1197-x.

8. Scientific head of the research project ‘Wave induced steady currents outside the surf zone’ supported by the European Union under the 6th Framework Programme, through funding for the ‘Integrated Infrastructure Initiative’ HYDRALAB III, as part of activities relating to transnational access to large experimental facilities, contract no. 022.441 (RII3). Project cost: €88,600. Project developed in 2008-2009.

Research products

Scandura, P., Foti, E. 2011 Measurements of wave-induced steady currents outside the surf zone. *Journal of Hydraulic Research*, vol. 49, pp. 64-71, ISSN: 0022-1686, doi: 10.1080/00221686.2011.591046.

Scandura, P., Capodicasa, E., Foti, E. 2011 Measurements of the steady currents outside the surf zone. In: Jane McKee Smith and Patrick Lynett (Eds.), *Proceedings of 32nd International Conference on Coastal Engineering*. p. 1-12, American Society of Civil Engineers (ASCE), ISBN: 978-0-9896611-0-2, Shanghai, China, June 30 - July 5, 2010.

9. Between 2008 and 2014, he collaborated with academics from the University of Trieste (Italy) on two different topics in fluid mechanics of interest in engineering and environmental applications. The first topic concerned the hydrodynamics generated by an oscillating flow around a cylinder placed near a rigid wall and the forces applied to it. The study is relevant for applications involving cables and pipelines located near the seabed and was addressed through numerical integration of the Navier-Stokes equations.

Research products

Scandura, P., Armenio, V., Foti, E. 2009 Numerical investigation of the oscillatory flow around a circular cylinder close to a wall at moderate Keulegan-Carpenter and low Reynolds numbers. *Journal of Fluid Mechanics*, vol. 627, pp. 259-290, ISSN: 0022-1120, doi: 10.1017/S0022112009006016.

Scandura, P., Armenio, V., Foti, E. 2008 Simulazioni numeriche del moto oscillante intorno ad un cilindro in prossimità di una parete piana. In: XXXI Convegno Nazionale di Idraulica e Costruzioni Idrauliche. Perugia, 9-12 settembre 2008, ISBN: 978-88-6074-220-9.

The second topic concerned the study of particle dispersion in an Ekman boundary layer under different stratification conditions: neutral, stable and unstable.

Research products

Scandura, P., Armenio, V., Sreenivasan, K.R. 2012 Lagrangian particles in a stratified turbulent bottom Ekman layer. In: XXXIII Convegno Nazionale di Idraulica e Costruzioni Idrauliche. Brescia, 10-14 settembre 2012, Cosenza: Edibios, ISBN: 978-88-97181-18-7.

Scandura, P., Armenio, E. 2014 Particles dispersion in a stratified turbulent Ekman boundary layer. In: *Proceedings of the 10th International Conference on Applied and Theoretical Mechanics (MECHANICS ‘14)*, Salerno, Italy, 3-5 June 2014.

10. Scientific Research Programme of National Interest PRIN 2008 “Operational tools for estimating the vulnerability of sandy coastlines, including in the presence of coastal structures”.

Research products

Faraci, C., Foti, E., Marini, A., **Scandura, P.** 2012 Waves plus currents crossing at a right angle: Sandpit case. *Journal of Waterways Port Coastal and Ocean Engineering-ASCE*, vol. 138, pp. 339-361, ISSN: 0733-950X, doi: 10.1061/(ASCE)WW.1943-5460.0000140.

Capodicasa E., **Scandura P.**, Foti E. 2010 Correnti stazionarie indotte da onde di mare su un fondale inclinato. In: *Atti del XXXII Convegno Nazionale di Idraulica e Costruzioni Idrauliche*. Palermo, 14-17 settembre 2010, Walter Farina editore, ISBN: 978-88-903895-2-82010.

Capodicasa E., **Scandura P.**, Foti E. 2011 Steady currents induced by sea waves propagating over a sloping bottom. In: *Proceedings of the International Conference on Coastal Engineering*. Shanghai, China, June 30 - July 5, 2010.

11. European Project SANDPIT ‘Sediment transport and morphology of offshore sand mining pits’, funded by the European Community (EC Framework V Project no. EVK3-CT-2001-00056).

Prodotti della ricerca

Foti, E., **Scandura, P.** 2004 A low Reynolds number $k-\epsilon$ model validated for oscillatory flows over smooth and rough wall. *Coastal Engineering*, vol. 51, pp. 173-184, doi:10.1016/j.coastaleng.2004.01.001.

Musumeci, R.E., Cavallaro, L., Foti, E., **Scandura, P.**, Blondeaux, P. 2006 Waves plus Currents Crossing at a right Angle: Experimental Investigations. *Journal of Geophysical Research*, vol. 111, ISSN: 0148-0227, doi: 10.1029/2005JC002933.

Blondeaux, P., Cavallaro, L., Foti, E., Musumeci, R.E., **Scandura, P.** 2004 Indagine sperimentale sull’interazione di onde e correnti ortogonali. In: *XXIX Convegno di Idraulica e Costruzioni Idrauliche*. Trento, 7-10 settembre 2004, vol. 3, pp. 697-704, ISBN: 88-7740-382-9.

12. In 2003-2004, he collaborated with academics from the University of Genoa on research aimed at studying the vortex structures formed in the boundary layer beneath sea waves in the presence of bedforms. These structures play a pivotal role in the transport of momentum and sediment.

Research product

Blondeaux, P., **Scandura, P.**, Vittori, G. 2004 Coherent structures in an oscillatory separated flow: numerical experiments. *Journal of Fluid Mechanics*, vol. 518, pp. 215-229, ISSN: 0022-1120, doi: 10.1017/S0022112004000953.

13. Scientific Research Programme of National Interest PRIN 2002 “Influence of vorticity and turbulence in the interaction of water bodies with surrounding elements and repercussions on hydraulic designs”.

Prodotto della ricerca

Scandura, P. 2003 Two-dimensional perturbations in a suddenly blocked channel flow. *European Journal of Mechanics, B/Fluids*, 22 (4), pp. 317-329, doi: 10.1017/S0022112000008430.

14. The European project SEDMOC (Sediment Transport Modelling in Marine Coastal Environments, EC MAST project no. MAS3-CT97-0115)

Research products

Scandura, P., Vittori, G., Blondeaux, P. 2000 Three-dimensional oscillatory flow over steep ripples. *Journal of Fluid Mechanics*, vol. 412, pp. 355-378, ISSN: 0022-1120, doi: 10.1017/S0022112000008430.

Blondeaux, P., **Scandura, P.**, Vittori, G., 2001. Direct simulation of the 3-D oscillatory flow over fixed vortex ripples. In: Van Rijn L.C., Davies A.G., Van De Graaff J., Ribberink J.S.. Sediment transport modelling in marine coastal environment. pp. AJ/1-AJ/11, AMSTERDAM: Aqua Publications, ISBN: 90-800356-4-5.

Scandura P., Vittori G., Blondeaux P., 2002 Bifurcations in the oscillatory flow over a wavy wall. *Meccanica*, vol. 37, pp. 305-311, ISSN: 0025-6455, doi: 10.1023/A:1020151121724.

Participation as a speaker at national or international conferences and conventions.

He has presented 30 papers at national and international conferences and conventions. A detailed list of the titles of these papers can be found on page 16.

TEACHING ACTIVITIES

Subjects taught as part of master's degree programmes.

- '**Fluid Mechanics**', 60 hours, 6 CFU, Master Degree in Mechanical Engineering, LM-33 (from A.Y. 2011/12 until now).
- '**Hydraulics and Hydraulic Constructions**', 60 hours, 6 CFU, Single-cycle Master degree course in Building Engineering and Architecture, LM-4 (From A.Y. 2016-17 until now).
- '**Hydraulics of Natural Systems**', 60 ore, 6 CFU, Master's Degree Course in Environmental and Land Engineering (From A.Y. 2003-04 to A.Y. 2009-10).
- '**Advanced Hydraulics**', 90 hours, 9 CFU, Master's Degree Course in Hydraulic Engineering (A.Y. 2009-10).

Lectures given in bachelor degree programmes

- '**Hydraulics**', 60 hours, 6 CFU, Bachelor's Degree in Environmental and Land Engineering (from A.Y. 2002-03 to A.Y. 2008-09).
- '**Fluid Mechanics**', 60 hours, 6 CFU, Bachelor Degree in Mechanical Engineering (A.Y. 2010-11).

With regard to the course on '**Fluid Mechanics**', in addition to classroom teaching, guided technical visits were made to hydraulic plants, as illustrated below.

Visit to the Troina hydroelectric power plant and the Ancipa dam, managed by Enel Green Power: A.Y. 2016/17 on 20/12/2016, A.Y. 2023/24 on 11/12/2013, A.Y. 2024/25 on 14/01/2025.

Visits to the Anapo hydroelectric power plant managed by Enel Green Power: A.Y. 2018/19 on 14/01/2019, A.Y. 2019/20 on 17/01/2020, A.Y. 2022/23 on 20/12/2022, A.Y. 2025/26 on 15/12/2025. In A.Y. 2019/20, the technical visit also included the Ragoletto Dirillo dam managed by ENI.

In connection with the ‘**Hydraulics and Hydraulic Constructions**’ course, a technical visit was conducted on June 9, 2026, to the Pozzillo Dam, where work is underway to construct new bottom outlets to replace the original ones, which were obstructed by sediment accumulation.

Assistance in the preparation of bachelor's, master's, and doctoral theses

He provided assistance in the preparation of 5 bachelor's theses and 7 master's theses.

He has been a tutor to three doctoral students at the University of Catania (Dott. Luca Cavallaro 16th cycle ciclo, Dott.ssa Erminia Capodicasa 22nd cycle, Dott. Pierpaolo Distefano 35th cycle)

From October 1, 2018, to November 23, 2021, he was officially co-supervisor of a PhD student at the University of Aberdeen (Scotland, UK), who developed a research project entitled “Turbulent oscillatory flow over an irregular rough wall.” Thesis defended on July 13, 2022. As part of this activity, the two journal publications listed below were produced.

Dunbar, D., van der A, D.A., **Scandura, P.**, O’Donoghue, T. 2023 An experimental and numerical study of turbulent oscillatory flow over an irregular rough wall. *Journal of Fluid Mechanics*, 955, art. no. A33, doi: 10.1017/jfm.2022.1090.

Dunbar, D., van der A, D.A., O’Donoghue, T., **Scandura, P.** 2023 An empirical model for velocity in rough turbulent oscillatory boundary layers. *Coastal Engineering*, 179, art. no. 104242, doi: 10.1016/j.coastaleng.2022.104242.

He is co-supervisor of a ‘PhD student’ from the la ‘**Universiti Teknologi PETRONAS**’ in **Malesia** who is developing a research entitled ‘Performance characteristics of an oscillating water column integrated with a decommissioned offshore oil platform’.

PARTICIPATION IN ERASMUS+ PROJECTS

Ha partecipato al progetto Erasmus+ **MARE** 'Marine Coastal and Delta Sustainability for Southeast Asia'. Key action 2: Cooperation for innovation and the exchange of good practices, Capacity building in the field of higher education (2020-2023). Il progetto include l’Università di Brema, l’Università dell’Estonia e il Consiglio Nazionale delle Ricerche più nove istituzioni scientifiche appartenenti a **Malesia e Vietnam**. Il progetto mirava allo sviluppo di nuovi corsi di laurea di primo livello e magistrali e corsi postlaurea finalizzati alla gestione sostenibile delle aree costiere in Malesia e Vietnam. Nell’ambito di questo progetto ha effettuato la revisione di oltre 10 syllabi di nuovi insegnamenti proposti presso le sedi Universitarie di Malesia e Vietnam coinvolte nel progetto. Inoltre ha anche tenuto tre seminari a studenti universitari dei paesi partner Malesia e Vietnam come di seguito riportato.

He participated in the Erasmus+ **MARE** project ‘Marine Coastal and Delta Sustainability for Southeast Asia’. Key Action 2: Cooperation for innovation and the exchange of good practices, Capacity building in higher education (2020-2023). The project includes the University of Bremen, the University of Estonia, and the National Research Council, plus nine scientific institutions from **Malaysia and Vietnam**. The project aimed to develop new bachelor's and master's degree programs and postgraduate courses focused on sustainable coastal management in Malaysia and

Vietnam. As part of this project, he reviewed more than 10 syllabi for new courses proposed at the universities in Malaysia and Vietnam involved in the project. He also held three seminars for university students from the partner countries Malaysia and Vietnam, as reported below.

‘Hydromorphodynamics of the Coastal Area’ at the International Summer School ‘Coastal and Marine Sustainability Enacted’ at **Universiti Teknologi PETRONAS** (Malaysia) August 15–28, 2022. <https://mare-project.net/index.php/2022/06/08/mareschool/>.

Coastal hydrodynamics: experimental and numerical approaches, at the School of “Sustainable Science and Management for Resilient Coastal Communities and Fish Stocks” November 1-7, 2021, CNR, Capo Granitola (TP). https://mare-project.net/wp-content/uploads/November-school_MARE_2021_program7.pdf.

“Hydrodynamics and coastal sediment transport” at the Training School for Coastal Resource Assessment, May 8-22, 2023, National Research Council – Institute for Marine Biological Resources and Biotechnology, Mazara del Vallo (TP). https://mare-project.net/wp-content/uploads/TACTUAL_FINAL.pdf.

As part of the MARE project, in 2023, students from **Universiti Teknologi Petronas** and **Universiti Kuala Lumpur Malaysian Institute of Marine Engineering Technology** were hosted by the Department of Civil Engineering and Architecture at the University of Catania, as indicated below.

- Names of students coming from ‘**Universiti Kuala Lumpur Malaysian Institute of Marine Engineering Technology**’:
Clement Paul, Paatish Bahadur Rana, Mohamad Ikmal Zharif Bin Mohamad (studenti di corsi di laurea magistrale).
- Names of the student coming from ‘**Universiti Teknologi Petronas**’: Eric Joseph Pereira (PhD in Civil Engineering).

Furthermore, the collaboration with **Universiti Teknologi Petronas** and **Universiti Kuala Lumpur Malaysian Institute of Marine Engineering Technology (UniKL MIMET)** has also resulted in scientific publications, as reported below.

Publication with researchers and students from **Kuala Lumpur University Malaysian Institute of Marine Engineering Technology**:

Paul, C., Mat Saad, K.A., Zakaria, A., Mohamad, Z.I.M., Rana, P.B., La Rosa, D., **Scandura, P.** 2025 Fluid–Structure Interaction Analysis on Drag Force for Semi-submersible Structures. In: Singh, D.K., Sambhav, S., Pandey, A.K., Ismail, A., Zulkipli, F.N., Öchsner, A. (eds) Advanced Engineering and Sustainable Solutions. Advanced Structured Materials, vol 228. Springer, Cham. https://doi.org/10.1007/978-3-031-81128-9_17.

Publication with researchers from ‘**Universiti Teknologi Petronas**’:

Scandura, P., La Rosa, D., Maccarrone, V., Teh, H.M. (2024). The Flow Near the Seabed: The Boundary Layer at the Bottom of Surface Waves. In: Maccarrone, V., Fadzil Akhir, M. (eds) Coastal Sustainability. Coastal Research Library, vol 39. Springer, Cham. https://doi.org/10.1007/978-3-031-75749-5_4.

Kumar, V.P., Teh, H.M., La Rosa, D., **Scandura, P.** (2024). Measurement Tools for Determination of Coastal Vulnerability in Malaysia. In: Maccarrone, V., Fadzil Akhir, M. (eds) Coastal Sustainability. Coastal Research Library, vol 39. Springer, Cham. https://doi.org/10.1007/978-3-031-75749-5_8.

INSTITUTIONAL ASSIGNMENTS

- He is the scientific director of the library of the Department of Civil Engineering and Architecture at the University of Catania for the Civil Engineering area.
- He is a member of the quality committee of the Department of Civil Engineering and Architecture at the University of Catania.
- He holds the position of secretary of the Council of the Master's Degree Course in Mechanical Engineering LM-33.

PARTICIPATION IN THE COUNCILS OF DOCTORAL PROGRAMS ACCREDITED BY THE MINISTRY

He is a member of the teaching staff of the Ministry-accredited PhD program entitled: 'Assessment and mitigation of urban and territorial risks' at the University of Catania. From the 2013-14 academic year (cycle XXIX) to the present (cycle XLII).

THIRD MISSION ACTIVITIES

Seminars

As part of the activities of the University of Catania aimed at a non-academic audience, he has held several seminars at high schools on the conversion of renewable energy from the sea. The schools involved in these seminars were as follows:

- Liceo Galileo Galilei of Catania, January 14, 2019.
- Convitto Cutelli of Catania, January 14, 2019.
- Liceo Classico Gorgia of Lentini (SR), February 11, 2019.
- Liceo Scientifico of Giarre (CT), March 29, 2019.
- Liceo Einaudi of Siracusa, May 14, 2019.

As part of the SHARPER projects funded by the European Commission under the 'European Researchers' Night' projects, in 2022, 2023, and 2025, he gave a presentation to the audience attending the event organized by the University of Catania, as reported below.

- 'Sea waves, presentation given on September 30, 2022.
- 'Mangrove Rehabilitation in Malaysia', presentation given on September 30, 2022.
- 'Renewable energy from waves and tides', presentation given on September 26, 2025.

As part of the activities organized by the Association for the Teaching of Physics (AIF) aimed at conveying the scientific concepts inherent in the objectives of the UN 2030 Agenda (goals 7 and 13), it held two seminars for high school teachers.

- 'Energy from the Sea', March 24, 2022.
- 'Wind Energy', February 28, 2023.

As part of the course 'Hydraulic compatibility studies of bridges, culverts, and structures in areas at risk of flooding' organized by the Italian Hydrotechnical Association in Catania and recognized by the National Council of Engineers for the awarding of professional training credits (CFP), on June 7, 2024, he gave a presentation entitled 'Excavation of the riverbed near bridge piers and abutments'.

Studies and consulting in the field of the third mission

In 2004, he participated in studies on physical models for the most appropriate choice of caissons to be used for the construction of anti-reflective quays in the port of Syracuse (Agreement between the Department of Civil and Environmental Engineering of the University of Catania and the Municipality of Syracuse).

In 2006, he participated in studies relating to the determination of the marine climate at the port of Pozzallo (RG) (Agreement between the Department of Civil and Environmental Engineering of the University of Catania and the Municipality of Pozzallo).

In 2006-2007, he participated in consulting activities in a study on the assessment of flood risk at the Sigonella military base (CT) (Agreement between the Department of Civil and Environmental Engineering of the University of Catania and the company "Ok Design Group").

In 2007, he was scientific director of the research agreement entitled 'Preliminary study for the drafting of guidelines for the identification, management, and monitoring of underwater borrow pits'. The project was funded by SIGMA s.r.l. (Palermo) as part of the POR Sicilia 2000-2006 (AXIS 3 - Human Resources - Measure 3.14) and carried out at the Department of Civil and Environmental Engineering of the University of Catania. Project amount: €20,000 + VAT.

In 2008, he participated in the 'Preparatory studies for the implementation of measures aimed at mitigating the hydraulic risk of the Catania-Siracusa motorway at the Benante canal crossing' (Agreement between the Department of Civil and Environmental Engineering of the University of Catania and the company Pizzarotti S.P.A.).

In 2009, he worked as a consultant for CUGRI (Inter-University Consortium for the Prediction and Prevention of Major Risks, University of Salerno - University of Naples "Federico II") with the aim of developing a critical analysis of the marine climate in the vicinity of the port of Catania.

PARTICIPATION IN EVALUATION COMMITTEES

In 2008, he was a member of the committee responsible for the comparative evaluation procedure for filling one university research position at the Faculty of Engineering of the University of Salerno - Scientific disciplinary sector ICAR/01 - Ordinary Supplement to the Official Gazette of the Italian Republic (IV Special Series) no. 21 of 13/3/2007.

In 2011, he was a member of the evaluation committee for the final exams of the PhD program in Civil and Environmental Engineering XXIII cycle at the University of Messina.

In 2018, he was a member of the evaluation committee for the final exams of the PhD program in Civil, Environmental, and Safety Engineering, Cycle XXX (Mediterranean University of Reggio Calabria and University of Messina).

In 2020, he was chairman of the public selection committee, based on qualifications and interviews, for the award of one grant for collaboration in research activities - scientific disciplinary sector ICAR/01 "Hydraulics" duration: 1 year, renewable, entitled: "Assessment of hydraulic hazards in sites of cultural interest," research project: eWAS - 'An early warning system for cultural heritage' - (D.R. no. 2718 of 07/10/2020) - Published on the University website on 07/10/2020.

In 2023, he was chairman of the public selection committee, based on qualifications and exams, for the recruitment of two second-level technologists (category d, economic position d/3), on fixed-term employment contracts and full-time working hours, for an average of 36 hours per week during the quarter, to provide technical/scientific support for the research activities provided for in the collaboration agreement with the Sicilian Region - Department of the Basin Authority of the Hydrographic District of Sicily for the implementation of 'prevention measures aimed at supporting and optimizing management planning, planning and implementation of the interventions referred to in the flood risk management plan - hydrological and hydraulic studies for the identification of river basins, for the identification of NWRM (natural water retention measures) and for the definition of flood control plans" - Department of Civil Engineering and Architecture of the University of Catania.

Call for applications: D.D. rep. no. 4041 of 10.11.2022 - PUBLISHED IN G.U.R.I., 4th SPECIAL SERIES "COMPETITIONS AND EXAMS" NO. 93 OF 25.11.2022. Examination board appointed by Director's Decree no. 940 of 2.3.2023. Bando: D.D. rep. n. 4041 del 10.11.2022 – PUBB. IN G.U.R.I., 4ª SERIE SPECIALE "CONCORSI ED ESAMI" N. 93 DEL 25.11.2022. Commissione d'esami nominata con Decreto direttoriale rep. n. 940 del 2.3.2023.

LIST OF JOURNAL PUBLICATIONS

1. Pezzinga, G., **Scandura, P.** 1995 Unsteady flow in installations with polymeric additional pipe. *Journal of Hydraulic Engineering*, vol. 121, pp. 802-811, ISSN: 0733-9429, doi: 10.1061/(ASCE)0733-9429(1995)121:11(802).
2. **Scandura, P.**, Vittori, G., Blondeaux, P. 2000 Three-dimensional oscillatory flow over steep ripples. *Journal of Fluid Mechanics*, vol. 412, pp. 355-378, ISSN: 0022-1120, doi: 10.1017/S0022112000008430.
3. **Scandura, P.**, Vittori, G., Blondeaux, P. 2002 Bifurcations in the oscillatory flow over a wavy wall. *Meccanica*, 37 (3), pp. 305-311, doi: 10.1023/A:1020151121724.
4. **Scandura, P.** 2003 Two-dimensional perturbations in a suddenly blocked channel flow. *European Journal of Mechanics, B/Fluids*, 22 (4), pp. 317-329, doi: 10.1016/S0997-7546(03)00037-2.
5. Blondeaux, P., **Scandura, P.**, Vittori, G. 2004 Coherent structures in an oscillatory separated flow: numerical experiments. *Journal of Fluid Mechanics*, vol. 518, pp. 215-229, ISSN: 0022-1120, doi: 10.1017/S0022112004000953.

6. Foti, E., **Scandura, P.** 2004 A low Reynolds number $k-\varepsilon$ model validated for oscillatory flow over smooth and rough wall. *Coastal Engineering*, vol. 51, pp. 173-184, ISSN: 0378-3839, doi: 10.1016/j.coastaleng.2004.01.001.
7. Musumeci, R.E., Cavallaro, L., Foti, E., **Scandura, P.**, Blondeaux, P. 2006 Waves plus currents crossing at a right angle: Experimental investigation, *J. Geophys. Res.*, 111, C07019, doi: 10.1029/2005JC002933.
8. **Scandura, P.** 2007 Steady streaming in a turbulent oscillating boundary layer. *Journal of Fluid Mechanics*, vol. 571, pp. 265-280, ISSN: 0022-1120, doi: 10.1017/S0022112006002965.
9. **Scandura, P.**, Armenio, V., Foti, E. 2009 Numerical investigation of the oscillatory flow around a circular cylinder close to a wall at moderate Keulegan-Carpenter and low Reynolds numbers. *Journal of Fluid Mechanics*, vol. 627, pp. 259-290, ISSN: 0022-1120, doi: 10.1017/S0022112009006016.
10. Cavallaro, L., **Scandura, P.**, Foti, E. 2011 Turbulence-induced steady streaming in an oscillating boundary layer: On the reliability of turbulence closure models. *Coastal Engineering*, vol. 58(4), pp. 290-304, ISSN: 0378-3839, doi: 10.1016/j.coastaleng.2010.10.001.
11. **Scandura, P.**, Foti, E. 2011 Measurements of wave-induced steady currents outside the surf zone. *Journal of Hydraulic Research*, vol. 49, pp. 64-71, ISSN: 0022-1686, doi: 10.1080/00221686.2011.591046.
12. Faraci, C., Foti, E., Marini, A., **Scandura, P.** 2012 Waves plus currents crossing at a right angle: Sandpit case. *Journal of Waterway Port Coastal and Ocean Engineering - ASCE*, vol. 138, pp. 339-361, ISSN: 0733-950X, doi: 10.1061/(ASCE)WW.1943-5460.0000140.
13. **Scandura, P.**, Foti, E., Faraci, C. 2012 Mass transport under standing waves over a sloping beach. *Journal of Fluid Mechanics*, vol. 701, pp. 460-472, ISSN: 0022-1120, doi: 10.1017/jfm.2012.181.
14. **Scandura, P.** 2013 Two-dimensional vortex structures in the bottom boundary layer of progressive and solitary waves. *Journal of Fluid Mechanics*, vol. 728, pp. 340-361, ISSN: 0022-1120, doi: 10.1017/jfm.2013.274.
15. Faraci, C., **Scandura, P.**, Foti, E. 2014 Bottom profile evolution of a perched nourished beach. *Journal of Waterway, Port, Coastal and Ocean Engineering*, 140 (5), art. no. 04014021, doi: 10.1061/(ASCE)WW.1943-5460.0000253.
16. Falciglia, P.P., Mancuso, G., **Scandura, P.**, Vagliasindi, F.G.A. 2015 Effective decontamination of low dielectric hydrocarbon-polluted soils using microwave heating: Experimental investigation and modelling for in situ treatment. *Separation and Purification Technology*, 156, pp. 480-488, doi: 10.1016/j.seppur.2015.10.038.
17. Faraci, C., **Scandura, P.**, Foti, E. 2015 Reflection of Sea Waves by Combined Caissons. *Journal of waterway port coastal and ocean engineering - ASCE*, vol. 141, pp. 1-12, ISSN: 0733-950X, doi: 10.1061/(ASCE)WW.1943-5460.0000275.

18. **Scandura P.**, Faraci C., Foti E. 2016 A numerical investigation of acceleration-skewed oscillatory flows. *Journal of Fluid Mechanics*, vol. 808, pp. 576-613, ISSN: 0022-1120, doi: 10.1017/jfm.2016.641.
19. Falciglia, P.P., **Scandura, P.**, Vagliasindi, F.G.A. 2017 Modelling of in situ microwave heating of hydrocarbon-polluted soils: Influence of soil properties and operating conditions on electric field variation and temperature profiles. *Journal of Geochemical Exploration*, 174, pp. 91-99, doi: 10.1016/j.gexplo.2016.06.005.
20. Falciglia, P.P., **Scandura, P.**, Vagliasindi, F.G.A. 2018 Modelling and preliminary technical, energy and economic considerations for full-scale in situ remediation of low-dielectric hydrocarbon-polluted soils by microwave heating (MWH) technique. *Journal of Soils and Sediments*, 18 (6), pp. 2350-2360, doi: 10.1007/s11368-017-1682-8.
21. van der A, D.A., **Scandura, P.**, O'Donoghue, T. 2018 Turbulence statistics in smooth wall oscillatory boundary layer flow. *Journal of Fluid Mechanics*, vol. 849, pp. 192-230, ISSN: 0022-1120, doi: 10.1017/jfm.2018.403.
22. Petrotta, C., Faraci, C., **Scandura, P.**, Foti E. 2018 Experimental investigation on sea ripple evolution over sloping beaches. *Ocean Dynamics* **68**, 1221–1237 (2018). doi: 10.1007/s10236-018-1197-x.
23. Faraci, C., **Scandura, P.**, Musumeci, R.E., Foti, E. 2018 Waves plus currents crossing at a right angle: near-bed velocity statistics. *Journal of Hydraulic Research*, vol. 56, pp. 464-481, ISSN: 0022-1686, doi: 10.1080/00221686.2017.1397557.
24. Cavallaro, P., Iuppa, C., **Scandura, P.**, Foti, E. 2018 Wave load on a navigation lock sliding gate. *Ocean Engineering*, vol. 154, pp. 298-310, ISSN: 0029-8018, doi: 10.1016/j.oceaneng.2018.02.023.
25. Faraci, C., **Scandura, P.**, Petrotta, C., Foti, E. 2019 Wave-induced oscillatory flow over a sloping rippled bed. *Water*, 11 (8), art. no. 1618, doi: 10.3390/w11081618.
26. van der Zanden, J., van der A, D.A., Cáceres, I., Larsen, B.E., Fromant, G., Petrotta, C., **Scandura, P.**, Li, M. 2019 Spatial and temporal distributions of turbulence under bichromatic breaking waves. *Coastal Engineering*, vol. 146, pp. 65-80, ISSN: 0378-3839, doi: 10.1016/j.coastaleng.2019.01.006.
27. **Scandura, P.**, Faraci, C., Blondeaux, P. 2020 Steady streaming induced by asymmetric oscillatory flows over a rippled bed. *Journal of Marine Science and Engineering*, 8 (2), art. no. 142, doi: 10.3390/jmse8020142.
28. Cavallaro, L., Iuppa, C., **Scandura, P.**, Foti, E. 2020 Wave-induced loads on a lock gate provided with an opening through the ballast tank. *Journal of Ocean Engineering and Marine Energy*, vol. 6, pp. 415-425, ISSN: 2198-6444, doi: 10.1007/s40722-020-00180-w.
29. **Scandura, P.**, Malara, G., Arena, F. 2021 The inclusion of non-linearities in a mathematical model for U-Oscillating Water Column wave energy converters. *Energy*, vol. 218, 119320, ISSN: 0360-5442, doi: 10.1016/j.energy.2020.119320.

30. Distefano, P., Peres, D.J., **Scandura, P.**, Cancelliere, A. 2022 Brief communication: Introducing rainfall thresholds for landslide triggering based on artificial neural networks. *Natural Hazards and Earth System Sciences*, 22 (4), pp. 1151-1157, doi: 10.5194/nhess-22-1151-2022.
31. Falciglia, P.P., Gagliano, E., **Scandura, P.**, Bianco, C., Tosco, T., Sethi, R., Varvaro, G., Agostinelli, E., Bongiorno, C., Russo, A., Romano, S., Malandrino, G., Roccaro, P., Vagliasindi, F.G.A. 2022 Physico-magnetic properties and dynamics of magnetite (Fe₃O₄) nanoparticles (MNPs) under the effect of permanent magnetic fields in contaminated water treatment applications, *Separation and Purification Technology*, 296, art. no. 121342, doi: 10.1016/j.seppur.2022.121342.
32. Vittori, G., Blondeaux, P., Foti, E., Musumeci, R.E., **Scandura, P.** 2023 The appearance of turbulence at the bottom of propagating surface waves. *Estuarine, Coastal and Shelf Science*, 280, art. no. 108142, doi: 10.1016/j.ecss.2022.108142.
33. Distefano, P., Peres, D.J., Piciullo, L., Palazzolo, N., **Scandura, P.**, Cancelliere, A. 2023 Hydro-meteorological landslide triggering thresholds based on artificial neural networks using observed precipitation and ERA5-Land soil moisture. *Landslides*, 20 (12), p. 2725-2739, doi: 10.1007/s10346-023-02132-5.
34. Dunbar, D., van der A, D.A., O'Donoghue, T., **Scandura, P.** 2023 An empirical model for velocity in rough turbulent oscillatory boundary layers: *Coastal Engineering*, 179, art. no. 104242, doi: 10.1016/j.coastaleng.2022.104242.
35. Dunbar, D., Van Der A, D.A., **Scandura, P.**, O'Donoghue, T. 2023 An experimental and numerical study of turbulent oscillatory flow over an irregular rough wall. *Journal of Fluid Mechanics*, 955, art. no. A33, doi: 10.1017/jfm.2022.1090.
36. Altomare, C., **Scandura, P.**, Cáceres, I., van der A, D.A., Viccione, G. 2023 Large-scale wave breaking over a barred beach: SPH numerical simulation and comparison with experiments, *Coastal Engineering* 185,104362, doi: 10.1016/j.coastaleng.2023.104362.
37. **Scandura, P.** 2025 Influence of irregular three-dimensional rough surfaces on the roughness function. *Journal of Fluid Mechanics*, 1007:A31, doi:10.1017/jfm.2025.61.
38. **Scandura, P.**, Mauro S., Michele M., Brusca, S. 2026 Numerical Simulations and Experimental Tests for Tailored Tidal Turbine Design. *Journal of Marine Science and Engineering*, 14, 236, MDPI, <https://doi.org/10.3390/jmse14030236>.

LIST OF PRESENTATIONS AT CONFERENCES AND CONVENTIONS FOR WHICH HE ACTED AS SPEAKER

1. **Scandura, P.**, Blondeaux, P. 1998 Moto oscillante in un condotto chiuso. In: XXVI Convegno di Idraulica e Costruzioni Idrauliche. vol. IV, pp. 323-332, Catania: Cuecm, 12-09-1998.
2. **Scandura, P.**, Vittori, G., Blondeaux, P. 2000 Biforcazioni nel moto oscillante in prossimità di una parete ondulata. In: Atti del XXVII Convegno di Idraulica e Costruzioni Idrauliche. vol. IV, pp. 387-394, Genova, 12-14 settembre 2000.

3. **Scandura, P.** 2001 La crescita di perturbazioni bidimensionali in un flusso soggetto a brusco arresto. In: XV Congresso AIMETA di Meccanica Teorica e Applicata. Taormina, 26-29 Settembre 2001
4. **Scandura, P.**, Foti, E. 2002 Modelli di chiusura turbolenta per lo studio del campo di moto in strati limite oscillanti. In: 28o Convegno Nazionale di Idraulica e Costruzioni Idrauliche. vol. 1, pp. 503-512, Cosenza: Editore Bios, ISBN: 88-7740-340-3, Potenza, Italia, 16-19 settembre 2002.
5. Blondeaux, P., **Scandura, P.**, Vittori, G. 2003 Three-dimensional vortices in the oscillatory flow over a rippled bed. In: Sea Wave Bottom Boundary Layer, Euromech Colloquium n. 451, Taormina, October 26-29.
6. Foti, E., **Scandura, P.** 2003 A low Reynolds number $k-\varepsilon$ model validated for oscillatory flow over smooth and rough wall. In: Sea Wave Bottom Boundary Layer, Euromech Colloquium n. 451, Taormina, October 26-29 2003.
7. **Scandura, P.**, Armenio, V., Foti, E. 2004 Oscillatory flow past a circular cylinder close to a wall: a model for the hydrodynamics around submarine pipelines. In: Proceedings of the 3rd International Conference on Marine Waste Water Discharges and Marine Environment. vol. 1, Catania, Catania, 27/09-02/10 2004.
8. **Scandura, P.**, Armenio, V., Foti, E. 2004 Moto oscillante intorno a un cilindro in prossimità di una parete piana. In: Atti del XV Congresso Italiano di Meccanica Computazionale. Genova 21-23 giugno 2004.
9. **Scandura, P.** 2006 Correnti stazionarie in uno strato limite oscillante in regime turbolento. In: Atti del XXX Convegno di Idraulica e Costruzioni Idrauliche. Roma: Casa Ed. degli Studi di Roma "La Sapienza", 2006, ISBN: 9788887242812, Roma, 10-15 settembre 2006.
10. **Scandura, P.**, Cavallaro, L., Foti, E. 2007 Steady Streaming in a turbulent sea wave boundary layer. In: AIMETA 2007 - XVIII Congresso AIMETA di Meccanica Teorica e Applicata. pp. 123-126, Brescia: Starrylink Editrice, ISBN: 978-88-89720-69-1, Brescia 11-14 settembre 2007.
11. **Scandura, P.**, Armenio, V., Foti, E. 2008 Simulazioni numeriche del moto oscillante intorno ad un cilindro in prossimità di una parete piana. In: XXXI Convegno di Idraulica e Costruzioni Idrauliche. pp. 256-1-256-8, ISBN: 978-88-6074-220-9, Perugia, 9-12 Settembre.
12. **Scandura, P.** Measurements of wave induced steady currents outside the surf zone. In Proceedings of the Hydralab III Joint Transnational Access User Meeting – ISBN: 978-3-00-030141-4, Hannover (Germany), 2 february, 2010.
13. Capodicasa, E., **Scandura, P.**, Foti, E. 2010 Steady currents induced by sea waves propagating over a sloping bottom. In: (a cura di): Jane McKee Smith and Patrick Lynett, Proceedings of the Coastal Engineering Conference 2010. vol. 1, American Society of Civil Engineers (ASCE), ISBN: 978-0-9896611-0-2, Shanghai (Cina), June 30 – July 5 2010 Shanghai, doi: 10.9753/icce.v32.currents.35.

14. **Scandura, P.**, Capodicasa, E., Foti, E. 2010 Measurements of the steady currents outside the surf zone. In: (a cura di): Jane McKee Smith and Patrick Lynett, Proceedings of 32nd International Conference on Coastal Engineering. p. 1-12, American Society of Civil Engineers (ASCE), ISBN: 978-0-9896611-0-2, Shanghai, China, June 30 - July 5, 2010.
15. Capodicasa, E., **Scandura, P.**, Foti, E. 2010 Correnti stazionarie indotte da onde di mare su un fondale inclinato. In: Atti del XXXII Convegno Nazionale di Idraulica e Costruzioni Idrauliche. Palermo: Walter Farina Editore, ISBN: 978-88-903895-2-8, Palermo, 14-17 settembre 2010.
16. **Scandura, P.**, Armenio, V., Sreenivasan K.R. 2012 Lagrangian particles in a stratified turbulent bottom Ekman layer. In: XXXIII Convegno Nazionale di Idraulica e Costruzioni Idrauliche. Cosenza: Edibios, ISBN: 978-88-97181-18-7, Brescia, 10-14 settembre 2012.
17. **Scandura, P.**, Faraci, C., Foti, E. 2013 Numerical Simulations of Acceleration-Skewed Oscillatory Flows. In: Proceedings of the 35th IAHR World Congress. vol. 6, A11586, Beijing: Tsinghua University Press, ISBN: 9787302335443, Chengdu, China, 8/9/2013-13/9/2013.
18. **Scandura, P.**, Armenio, V. 2014 Particles dispersion in a stratified turbulent Ekman boundary layer. In: Latest trends in applied and theoretical mechanics. pp. 115-121, Wseas Press, ISBN: 978-960-474-377-3, Salerno (Italy), 3-5 giugno 2014.
19. Faraci, C., **Scandura, P.**, Foti, E. 2014 Evolution of a perched nourished beach: comparison between field data and numerical results. In: Coastal Engineering Proceedings. vol. 34, sediment.70, Coastal Engineering Research Council, ISBN: 978-0-9896611-2-6, Seoul, Korea, 15-20 June 2014, doi: 10.9753/icce.v34.sediment.70.
20. **Scandura, P.**, Faraci, C., Foti, E. 2015 Wall shear stress statistics in an oscillatory flow. In: (a cura di): Arthur Mynett, Proceedings of the 36th IAHR World Congress. Madrid: IAHR - International Association for Hydro-Environment Engineering and Research, ISBN: 978-90-824846-0-1, The Hague (the Netherlands), 28 Giugno - 3 Luglio 2015.
21. **Scandura, P.**, van de A, D.A., Van der Zanden, J., Petrotta, C., Faraci, C., Cooper, J., Clarck, S., Eltard Larsen, B., Carstensen, S., Fuhrman, D.R., Caceres, I., Mclelland, S., Fromant, G., Hurter, D., Ruessink, G., Brinkkemper, J., Li, M. 2018 Hydrodynamics under large-scale waves breaking over a barred beach. In: Proceedings of the 7th International Conference on the Application of Physical Modelling in Coastal and Port Engineering and Science (Coastlab 2018). Santander, Spain, 22-26 May 2018.
22. **Scandura, P.**, van der A, D.A., van der Zanden, J., Cáceres, I., Faraci, C., Li, M. 2020 Hydrodynamics under large-scale breaking waves over a barred beach, In: XXXVII Convegno Nazionale Di Idraulica e Costruzioni Idrauliche. Presentazione tenuta online.
23. **Scandura, P.**, Altomare, C., Cáceres, I., Viccione, G., van der A, D.A. 2022 SPH simulation of wave breaking over a barred beach. In: (a cura di): Giuseppe Bilotta, Proceedings of the 16th SPHERIC International Workshop. pp. 223-228, ISBN: 979-12-8028-205-7, Catania, 6-9 giugno 2022.

24. **Scandura, P.**, Altomare, C., Caceres, I., Viccione, G., van der A, D.A. 2022 SPH simulation of wave breaking over a barred beach. 6th DualSPHysics Workshop, Universitat Politecnica de Catalunya – BarcelonaTech, 25-27 October 2022, Barcelona, Spain.
25. **Scandura, P.**, Malara, G., Arena, F. 2022 A Non-Linear Model for U-Oscillating Water Column Wave Energy Converters. In: Atti del XXXVIII Convegno Nazionale di Idraulica e Costruzioni Idrauliche. ISBN: 9788894379921, Reggio Calabria, 4-7 settembre 2022.
26. **Scandura, P.**, Corrado A., Viccione, G., La Rosa, D. 2022 Numerical simulation of breaking waves through the SPH method. The 3rd tropical ocean and marine sciences international symposium, 6th-7th November 2022, University Malaysia Terenganu, Malaysia.
27. **Scandura, P.**, Altomare, C., Caceres, I., Viccione, G., van der A, D. 2024 SPH simulation of wave breaking and comparison with experiments. 10th International Symposium on Environmental Hydraulics, 25-27 giugno, Aberdeen, Scozia. In questo simposio oltre a effettuare una relazione ha presieduto la sessione: Advanced Modelling Approaches and Applications.
28. **Scandura, P.**, Altomare, C., Caceres, I., Viccione, G., van der A, D.A. 2024 SPH simulation of wave breaking over a barred beach. 38th International Conference on Coastal Engineering, 8-14 September, Roma.
29. **Scandura, P.**, Messina, M., Mauro, S., Brusca, S. 2025 Fluid-Dynamic design of a small scale Tidal Turbine for Laboratory testing. Offshore Energy & Storage Symposium (OSES 2025), July 16-18 2025, Bari, Italy.
30. **Scandura P.** 2026 Direct numerical simulation of turbulent flows over rough surfaces. Mathematics, Physics and Technology: Charge Transport, Nonlinear Waves, and Mathematical Modeling. Catania, Italy, 9-11 September 2026

ELENCO DELLE PRESENTAZIONI A CONGRESSI E CONVEGNI PER LE QUALI NON HA SVOLTO LA FUNZIONE DI RELATORE

1. Barbagallo, S., **Scandura, P.**, Tamburino, V. 1997 La gestione dei sedimenti nei grandi serbatoi: problemi ed esperienze in Sicilia. In Atti del VI Convegno Nazionale di Ingegneria Agraria vol. 1 10-12 settembre 1997.
2. Blondeaux, P., **Scandura, P.**, Vittori, G. 1999 A Lagrangian approach to describe sediment dynamics over a rippled bed: preliminary results. International Symposium on River, Coastal and Estuarine Morphodynamics (RCEM), September, 6th-10th 1999 Genova, Italy.
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5. Blondeaux, P., **Scandura, P.**, Vittori, G. 2004 Strutture vorticose coerenti 3-D nel moto oscillante sopra una parete ondulata. In Atti del XXIX Convegno di Idraulica e Costruzioni Idrauliche - ISBN: 88-7740-382-9 vol. 1, 7-10 settembre 2004, Trento.
6. Blondeaux, P., Cavallaro, L., Foti, E., Musumeci, R. E., **Scandura, P.** 2004 Indagine sperimentale sull'interazione di onde e correnti ortogonali. In Atti del XXIX Convegno di Idraulica e Costruzioni Idrauliche - ISBN: 88-7740-382-9 vol. 3, 7-10 settembre 2004, Trento.
7. Cavallaro, L., Foti, E., **Scandura, P.**, 2004 Formazione di correnti stazionarie nei moti oscillanti sopra una parete ondulata. In Atti del XV Congresso Italiano di Meccanica Computazionale, 21-23 giugno 2004, Genova.
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