

# Marine Design 2020 International Congress

Puerto Real, Cádiz  
CEIMAR-UCA-RINA

15-16th, 2020  
January

## 1. Welcome

A mingling of peoples and cultures that have made Cadiz a point of welcome and given its inhabitants a vocation for hospitality. The University of Cadiz continues this tradition today, with the organization of the RINA Congress Cadiz 2020.

We warmly invite young and not so young researchers, and also students, to attend this new edition of RINA conference and to send scientific communications related to the main tracks of the event. Our main purpose is giving you the opportunity to communicate your research and to create and/or strengthen new scientific collaborations.

Thus, we have prepared a scientific program with national and international speakers that we believe is very attractive. The event format includes plenary session, and seven ordinary session with 23 talks by speakers.

We would like to thank you again for participating at the Marine Design 2020 Congress and we remain at your entire disposal for any further information you may need.

We look forward to seeing you in Cádiz!

## 2. Location

The Congress will be held at the Faculty of Science (Puerto Real Campus), on January 16-17.

The Puerto Real Campus is one of the four campuses housing the University of Cádiz. It is located at the municipal limits of Puerto Real (Cádiz). It is well-connected with all the localities in the bay of Cádiz and several nearby (Jerez, Sanlúcar, Chipiona, Arcos and the white towns of the mountain range, accessibly by bus or commuter train.

## 3. Reaching Cádiz

### Option 1. JEREZ DE LA FRONTERA AIRPORT (XRY)

The nearest airport is Jerez Airport (XRY; practical information: <http://www.aena.es/en/jerez-airport/index.html>; public transport information : <http://www.aena.es/en/jerez-airport/public-transport.html>). It is a small airport located 30 km from Cádiz. To reach Cádiz from the airport there are 4 options:

- To take a bus from the airport to Cádiz (Line M-050). Travel time: 1:15. One-way ticket: around 6€. Timetables: [http://siu.cmtbc.es/en/horarios\\_lineas\\_tabla.php?linea=16](http://siu.cmtbc.es/en/horarios_lineas_tabla.php?linea=16)
- To take a taxi from the airport to Jerez Railway Station (around 20 €) and take there a train to Cádiz (4€). Timetables can be retrieved at: <http://www.renfe.com/EN/viajeros/index.html>
- To take a train from the Airport to Cádiz. Timetables can be retrieved at: <http://www.renfe.com/EN/viajeros/index.html>
- To take a taxi from the airport to Cádiz (around 60 €)

## Option 2. SEVILLE

Some flights arrive directly to Seville Airport (SVQ; practical information: <http://www.aena.es/en/sevilla-airport/index.html>). This is a bigger airport located 120 km from Cádiz. If you arrive there, the best option is to take a bus to Santa Justa Railway Station in Seville (they run every 30 minutes between 6:15 and 23:00. The journey takes 20-30 minutes and a single ticket costs 4.50 €). Once there you should take a regional train from Seville to Cádiz. The travel takes 1.5h-2h and a one-way ticket costs 16.05 €(you can buy tickets in the Ticket Window before catching the train). You can check the timetables at:<http://www.renfe.com/EN/viajeros/index.html>. The Train Station in Cádiz is in the centre of the city so the best way to arrive to your hotel is having a walk.

## 4. About Cádiz

The city of Cadiz is an amazing place to explore on foot. Situated at the end of a peninsula, Cadiz is surprisingly compact and easy to navigate, even for the most timid of visitors. The “Tacita del Plata” is considered the oldest city in the Western World. It was founded (in 1100 B.C.) by the Phoenicians, a seafaring people who turned Gadir into an important trading colony where the Carthaginians, the Romans, the Visigoths and the Muslims would all subsequently settle. An open, cosmopolitan city, its port was chosen by Columbus as the point of departure for his second voyage to the New World. The city would then become, after the decline of Seville, the port to The Indies, drawing the flow of trade with the American Continent. This frantic commercial activity then brought about an era of economic, cultural splendor, when Baroque palaces with their characteristic towers offering amazing views were built.

The Cathedral, which can be seen from the sea, and its golden tiled dome fit perfectly into the Cadiz cityscape with its colonial air. It combines both the Baroque and Neoclassical styles, and its treasure is amongst the most important in Spain. The intense trading activity with The Indies awakened the greedy interest of pirates, which led to the city being fortified. The remains of the original although renovated cross-fire defense system designed by Vauban make up an important part of the heritage of Cadiz. Las Puertas de Tierra, the city gates, retain sections of walls and semi-bastions such as those of San Roque and Santa Elena, on both sides. A stroll through the Campo del Sur affords the visitor a view of the Los Mártires and Capuchinos defence bastions, by La Caleta, which is guarded by San Sebastián and Santa Catalina Castles. Heading towards the boulevard Alameda Apodaca, the La Candelaria Bastion and the San Carlos Walls can also be seen.

The Puertas de Tierra Walls clearly divide the new city regained from the sea –built along a great avenue and along the extensive, landscaped promenade– and the old. The historic centre of the city has narrow streets and small squares in popular districts such as La Viña – the fisherman’s district – the Mentidero, Santa María (true home of flamenco song) and El Pópulo. The El Pópulo District, which is the oldest in the city, retains the three gates to the original Medieval city: the El Pópulo, De la Rosa and De los Blancos Arches, apart from the Roman Theatre and the one-time Cathedral, Santa Cruz Church. The emblematic Plaza de San Juan de Dios is the place to savour the typical “pescaíto frito” fried fish, while listening to Cadiz composer Manuel de Falla’s Amor Brujo played by the City Hall Clock.

## 5. Accommodation

Please book your accommodation at the earliest through hotel reception services or as specified below. If you need help you can contact the CEI-MAR staff (see contact details at the end of the document). We recommend that you stay in proximity to the venue, i.e. that you choose your hotel downtown. Please feel free to book in hotels not listed below. The location of hotels and the venue is shown on the meeting map: <https://goo.gl/eqzYBi>

For information on hotels in Cadiz City, visit <http://www.andalucia.com/cities/cadiz/hotels.htm>

## 6. Transportation

If you stay in Cádiz, you can use the bus to go to the event. It is the best and cheapest option. You need to take the bus Lines - Transport Consortium of Andalucia, bus: M-037 -From Cádiz to Campus De Puerto Real. The cost of a single journey is 2,50 €.

Following, the stops from Cádiz to University

- Departure
- Plaza De España
- Avda. Del Puerto-Edif. Trocadero
- Av. Astilleros-Estación Autobuses
- Avda. Las Cortes
- Avda. Argentina-Edif. Bahía
- Avda. Argentina-Instituto
- Campus-C. Educación
- Campus-Ciencias (RINA CONGRESS)
- Escuela Ingeniería (Interior)

For the timetables of the line, you can use this URL [http://siu.cmtbc.es/en/horarios\\_lineas\\_tabla.php?linea=6](http://siu.cmtbc.es/en/horarios_lineas_tabla.php?linea=6)

## 7. List of authors (by order of talks)

1. **A. Querol, University of Cadiz**  
F. Piniella, P. Sánchez, J.C. Rasero, A. Vargas, S. Sotomayor, C. Perez, D. Sales, A. Guelfo (UCA, Spain), A. Vargas (Universidad de Huelva, Spain), F. Perna (Universidade do Algarve, Portugal)
2. **S. McCartan, Coventry University**  
A.Nazarov (Albatross Marine Design, Thailand)
3. **A. Eilbeck,**  
P. Woodbridge (EBDIG, LJMU,UK), S. McCartan (EBDIG, FAH, Coventry University, UK)
4. **A. Nazarov, Albatross Marine Design**
5. **S. McCartan, Coventry University**  
T. Dobbins (ST Research, UK), I. Chapsos (EBDIG, CTPSR, Coventry University, UK)
6. **S. McCartan, Coventry University**  
M. Mai (Aquacon, AT), M. Mooney (EBDIG, MVizUK, UK)
7. **A. Querol, University of Cadiz**  
M.J. Legaz, B. Flethes, M. Ávalos (UCA, Spain), S. McCartan (EBDIG, FAH, Coventry University, UK)
8. **S. McCartan, Coventry University**  
D. Moreno Nieto (EBDIG, Department of Mechanical Engineering and Industrial Design, UCA, ES), M. Mooney (EBDIG, MVizUK, UK)
9. **R. Pérez Fernández, SENER**
10. **Lal Krishna, IIT Madras (India)**
11. **G.S. Barkley, Southampton Solent University**
12. **J.A. Pagán, NAVANTIA**
13. **J.M. Sánchez-Amaya, NAVANTIA**  
C. Churiaque, M. Chludzinski, R.E.dos Santo (UCA, Spain), M.Porrúa-Lara2, F.Abad-Fraga (Navantia S.A., Spain)

14. **D. Moreno-Sanchez,**  
J.D. Rodriguez, A. Domínguez-Calvo, S.I. Molina, IMEYMAT (UCA, Spain), E. Corrales-Estárico, F. Abad, V. Casal (Navantia S.A., Cadiz, Spain)
15. **D. Moreno Nieto,**  
S. de la Rosa Silva, S. I. Molina (IMEYMAT, UCA, Spain)
16. **T. Dobbins, Coventry University**
17. **M. Benito Berlinches,**  
J. L. Muñoz Pérez (Navantia Sistemas, Spain)
18. **Etinne, The Oslo School of Architecture and Design (Norway)**
19. **C. Mascarenas, University of Cadiz**  
Vázquez (UCA, Spain)
20. **I. Vicente-Cera,**  
A. Acevedo-Merino, J. A. López-Ramírez, E. Nebot ( INMAR, UCA, Cadiz, ES)
21. **J. Moreno-Gutiérrez, University of Cadiz**  
F. Calderay-Cayetano, Y. Amado Sánchez, E. Pájaro Velazquez, R. Rodriguez Moreno, V. Durán Grados (UCA, Spain)
22. **P. Beltrán, Técnicas y Servicios de Ingeniería SL (Spain)**
23. **A. K. Haldar, University of Limerick, IRL**  
G.Kannan, A.Portela, C.Athavale, A.J.Comer (IComp, University of Limerick, IRL)
24. **J.I Silvera, Navantia**
25. **A. Tissari, Technical Research Centre of Finland Ltd**  
T. Korhonen, T.Kling, A. Korkealaakso, T. Hakkarainen (VTT Technical Research Centre of Finland Ltd, Finland)

## 8. Sessions

The conference runs promptly with 30-minute time slots, which includes time for questions .

### Session 1, Wednesday

From 11:00 to 12:00; Chairman: Mr. Vidal  
Marine Design System Innovation

S1.T-1 [A. Querol](#)- **ESPOMar Project: New passenger maritime transport system for the Gulf of Cadiz**

S1.T-2 [S. McCartan](#)- **Design-Driven Innovation: Sustainable Luxury River Cruise Network for Colombia to Support the Economic Development of Rural**

### Session 2, Wednesday

From 12:30 to 14:30; Chairman: Mr. Pérez  
Marine Design System Innovation

S2.T-3 [A. Eilbeck](#)- **Maritime augmented reality, as a tool for immersive experiences for ferry and cruise operators between the UK and Ireland, creating**

S2.T-4 [A. Nazarov](#)- **Designing Water Taxis**

S2.T-5 [S. McCartan](#)- **Developing Coastal Patrol Interception and Mega-City Littoral Support for West Africa using the Marine Design Process**

From 15:00 to 16:30; Chairman: Mr. Pérez  
Marine Design Vessel Innovation

S3.T-6 [S. McCartan](#)- ASV for Water based Sustainable Urban Mobility in Venice and Groningen in 2050

S3.T-7 [A.Querol](#)- ESP Omar Project: Ship design optimization for new passenger maritime transport system for Gulf of Cadiz

S3.T-8 [S. McCartan](#)- Design-Driven Innovation: La Trasatlántica – 280m Sustainable Luxury Transatlantic Pentamarian Superlinerl

From 17:00 to 18:30; Chairman: Mr. Querol  
Marine Design Process Innovation & Teaching

S4.T-9 [R. Pérez Fernández](#)- Paperless Design in the Shipbuilding Environment

S4.T-10 [Lal Krishna](#)- Design Analysis of High Speed Vessel

S4.T-11 [G.S. Barkley](#)- Educating Future Superyacht Designers at Solent University – MSc Superyacht Design

From 09:45 to 11:45; Chairman: Mr. Querol  
Manufacturing Innovation

S5.T-12 [J.A. Pagán](#)- NAVANTIA's Vision for Smart

S5.T-13 [J.M. Sánchez-Amaya](#)- Laser Hybrid Welding in Shipbuilding

S5.T-14 [D. Moreno-Sanchez](#)- On Board Additive Manufacturing of Spare Parts for the Naval Sector

S5.T-15 [D. Moreno Nieto](#)- Large format additive manufacturing in the leisure and sportive boat construction industry

From 12:15 to 14:15; Chairman: Mr. Mcartan  
HSI and HF

- S6.T-16 [T. Dobbins](#)- The Development of a Personal Protective Equipment (PPE) Exoskeleton for Reducing Repeated Shock, Whole Body Vibration and Fatigue on High Speed Craft
- S6.T-17 [M. Benito Berlinches](#)- Application of 3D technologies in ships operation and training of their crews
- S6.T-18 [Etinne](#)- A 10-day course to plan and execute field studies for maritime design processes
- S6.T-19 [C. Mascarenas](#)- Notes on Maritime Cybersecurity in Ship Design.

From 15:15 to 16:45; Chairman: Mr. Ponkratov  
Technology Innovation and the Enviroment

- S7.T-20 [I. Vicente-Cera](#)- Analysis of the fluvial traffic of cruise ships from AIS and GIS data: most crowded river basins and wastes productions
- S7.T-21 [J. Moreno-Gutiérrez](#)- Towards EEDI and EEOI variables discussion
- S7.T-22 [P. Beltrán](#)- Silent vessels technology and the reduction of underwater radiated noise as a significant issue for the future of maritime engineering
- S7.T-23 [A. K. Haldar](#)- Mechanical characterization of polymer composite materials for long length ships

From 17:15 to 18:45; Chairman: Mr. Ponkratov  
Technology Innovation and the Enviroment

- S8.T-20 [A. K. Haldar](#)- Mechanical characterization of polymer composite materials for long length ships
- S8.T-21 [J.I Silvera](#)- Digital Twins and the challenges for Naval and Maritime ecosystem
- S8.T-22 [A. Tissari](#)- Fire simulations of a fishing research vessel with FRP structures

## Time table Marine Design 2020 CONGRESS -Version 1

	Tuesday	Wednesday	Thursday
09:00 - 10:00		<div>09:00 – 09:30</div> <div>Registration</div> <div>F.Ciencias SG2</div>	<div>09:00 – 09:30</div> <div>Registration</div> <div>F.Ciencias SG2</div>
10:00 - 11:00		<div>09:30 – 10:00</div> <div>Openning</div> <div>F.Ciencias SA</div> <div>10:00 – 10:20</div> <div>welcome by authorities</div> <div>F.Ciencias SA</div> <div>10:20 – 10:45</div> <div>Plenary Talk</div> <div>F.Ciencias hall SG2</div> <div>10:45 – 11:00</div> <div>Welcome coffee</div> <div>F.Ciencias hall SG2</div> <div>10:45 – 11:00</div> <div>Sponsor talk-Navantia</div>	<div>09:30 – 09:45</div> <div>Sponsor talk-Grafinta</div> <div>09:45 – 11:45</div> <div>Talks-Working Session 5</div> <div>J.A. Pagán</div> <div>J.M. Sánchez-Amaya</div> <div>D. Moreno-Sanchez</div> <div>D. Moreno Nieto</div> <div>chairman:Mr. Querol</div> <div>F.Ciencias SG2</div>
11:00 - 12:00		<div>11:00 – 12:00</div> <div>Talks-Working Session 1</div> <div>A. Querol</div> <div>S. McCartan</div> <div>chairman:Mr. Vidal</div> <div>F.Ciencias SG2</div>	<div>11:45 – 12:15</div> <div>Coffee Break</div> <div>F.Ciencias hall SG2</div>
12:00 - 13:00		<div>12:00 – 12:30</div> <div>Coffee Break</div> <div>F.Ciencias hall SG2</div> <div>12:30 – 14:00</div> <div>Talks-Working Session 2</div> <div>A. Eilbeck</div> <div>A. Nazarov</div> <div>S. McCartan</div> <div>chairman:Mr. Vidal</div> <div>F.Ciencias SG2</div>	<div>12:15 – 14:15</div> <div>Talks-Working Session 6</div> <div>T. Dobbins</div> <div>M. Benito Berlinches</div> <div>Etinne</div> <div>C. Mascarenas</div> <div>chairman:Mr. McCartan</div> <div>F.Ciencias SG2</div>
13:00 - 14:00			<div>14:15 – 15:15</div> <div>breaks at lunchtime</div>
14:00 - 15:00		<div>14:00 – 15:00</div> <div>breaks at lunchtime</div> <div>informal lunch</div> <div>F.Ciencias hall SG2</div>	<div>14:15 – 15:15</div> <div>breaks at lunchtime</div>
15:00 - 16:00		<div>15:00 – 16:30</div> <div>Talks-Working Session 3</div> <div>S. McCartan</div> <div>A.Querol</div> <div>S. McCartan</div> <div>chairman:Mr. Pérez</div> <div>F.Ciencias SG2</div>	<div>informal lunch</div> <div>F.Ciencias hall SG2</div>
16:00 - 17:00		<div>16:30 – 17:00</div> <div>Coffee Break</div> <div>F.Ciencias hall SG2</div>	<div>15:15 – 16:45</div> <div>Talks-Working Session 7</div> <div>I. Vicente-Cera</div> <div>J. Moreno-Gutiérrez</div> <div>P. Beltrán</div> <div>chairman:Mr. Ponkratov</div> <div>F.Ciencias SG2</div>
17:00 - 18:00		<div>17:00 – 18:30</div> <div>Talks-Working Session 4</div> <div>R. Pérez Fernández</div> <div>Lal Krishna</div> <div>G.S. Barkley</div> <div>chairman:Mr. Querol</div> <div>F.Ciencias SG2</div>	<div>16:45 – 17:15</div> <div>Coffee Break</div> <div>F.Ciencias hall SG2</div>
18:00 - 19:00		<div>18:30 – 19:00</div> <div>Family Photo</div> <div>F.Ciencias SG2</div>	<div>17:15 – 18:45</div> <div>Talks-Working Session 8</div> <div>A. K. Haldar</div> <div>J.I Silvera</div> <div>A. Tissari</div> <div>chairman:Mr. Ponkratov</div> <div>F.Ciencias SG2</div>
19:00 - 20:00		<div>19:00 – 20:00</div> <div>Go to visit &amp; Gala Dinner</div> <div>outside</div> <div>Baluarte Cádiz</div>	<div>18:45 – 19:15</div> <div>closing ceremony</div> <div>F.Ciencias SG2</div>



# COMMITTEES

## HONORARY COMMITTEE

**Chaired by Francisco Piniella Corbacho** (Most Excellent Rector of the University of Cadiz)

**María Jesús Mosquera Díaz**, Vice-rector for Scientific and Technological Policies

**Dmitriy Ponkratov**, Technical Director of RINA

**Juan José Muñoz Pérez**, General Coordinator of CEI-MAR

**Juan Manuel López Alcalá**, Director of the School of Naval Architecture and Ocean Engineering

**Juan Moreno Gutiérrez**, College of Marine, Nautical and Radioelectronics Engineering

**Daniel García Gomez de Barreda**, Director of the School of Director of the Department of marine-navigation Sciences and Technologies and Shipbuilding

## Programme Committee

- Mr. Antonio Querol Sahagún, University of Cadiz
- Mr. Juan Vidal Pérez, CEIMAR technical coordinator.
- Mr. Jaime Pérez Martínez, The Royal Institution of Naval Architects

## Organising Committee

- Mr. Antonio Querol Sahagún, University of Cadiz
- Mr. Juan Vidal Pérez, CEIMAR
- Mrs. Mercedes Morales Román, CEIMAR
- Mrs. Nathalie Mejías Castillo, CEIMAR
- Mrs. Eva Morales Medina, CEIMAR
- Mrs. Begonia Flethes, University of Cadiz
- Mrs. Ruth García, University of Cadiz
- Mrs. Nieves Endrina, University of Cadiz
- Mr. Ignacio Alcaide, University of Cadiz
- Mrs. Patricia Sánchez, University of Cadiz

## Scientific-Technical Committee

Chairman:

**Dr Seán McCartan**, EBDIG, FAH, Coventry University, UK

Members:

**Andrew Beck**, EBDIG, UK

**Dr Trevor Dobbins**, ST Research, UK

**Bob Verheijden**, Minerva Art Academy, Hanze University of Applied Sciences, NL

**Kjetil Norby**, AHO, NO

**Margareta Luthoft**, HVL, NO

**Dario Boote**, Genoa University, IT

**Albert Nazarov**, Albatross Marine Design, TH

**Monica Lundh**, Chalmers University of Technology, SE

**Paolo Ferrari**, University of Trieste, IT

## Technical Secretariat

### Registration and Financial task technician:

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### Technical Secretariat:

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### Invited and Communications:

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### Technical Secretariat Coordination:

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## Organizers y Promoters

Organizers:



Promoters:



Major Sponsor:

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