First International Conference on Technological Advances in Podded Propulsion

School of Marine Science and Technology, University of Newcastle, UK
14th – 16th April 2004

Final Programme

As part of the EC Fifth Framework Project “FASTPOD - Fast Ship Applications for Pod Drives”
DAY ONE
Wednesday 14th April

8.30 – 9.30  REGISTRATION – King’s Hall, Armstrong Building
9.30 – 10.00 OPENING CEREMONY – Robert Boyle Lecture Room, Armstrong Building

- Head of School Prof Atilla Incecik
- T-POD Chairman Prof Mehmet Atlar

Session one  DESIGN TECHNOLOGY
Chairman: Dr David Clarke, University of Newcastle, UK

10.00 – 10.25  FAST SHIP APPLICATION FOR POD DRIVES – FASTPOD PROJECT
FASTPOD Partners, European Union
Presented by Michael Woodward, University of Newcastle, UK

10.25 – 10.50  PARAMETRIC INVESTIGATIONS DESIGNED TO HELP FOCUSED POD TECHNOLOGY DEVELOPMENTS
P.Goubault, J.Perree, Principia Marine, France

10.50 – 11.15  HULL DESIGN AND OPTIMISATION WITH POD PROPELLERS WITH 5 AND 6 BLADES
G.Bertaglia, G.Lavini, S.Scarpa, Fincantieri, Italy

11.15 – 11.45  COFFEE BREAK – King’s Hall

Session two  INNOVATIVE SOLUTIONS
Chairman: Gianpiero Lavini, Fincantieri, Italy

11.45 – 12.10  NEW PODDED DRIVES FOR THE POWER RANGE OF 1-5 MW
S.Kaul, SCHOTTEL, Germany

12.10 – 12.35  RIM-DRIVE PROPULSION – IMPROVING RELIABILITY AND MAINTAINABILITY OVER TODAY’S PODS
B.Van Blarcom, A.Franco, M.Lea, S.Peil, D.Thompson, P.van Dine, General Dynamics, Electric Boat, USA
12.35 – 13.00     POD PROPULSION RESEARCH AND DEVELOPMENT AT THE ARL-PENN STATE  
J.E.Eaton, M.Billet, Applied Research Laboratory-Penn State University, USA

13.00 – 14.00     LUNCH BUFFET – King’s Hall

14.00 – 14.30     EMERSON CAVITATION TUNNEL – Delegates are invited to tour the University cavitation tunnel facility (follow direction signs) where tunnel personnel will be available to answer your questions

Session three

MOTION RESPONSE

Chairman: Prof Atilla Incecik, University of Newcastle, UK

14.30 – 14.55     OPERABILITY OF FAST PODDED ROPAX SHIPS IN ROUGH SEAS  
K.Sarioz, Istanbul Technical University, Turkey; M.Atlar, University of Newcastle, UK; E.Sarioz, Istanbul Technical University, Turkey; M.D.Woodward, R.Sampson, University of Newcastle, UK

14.55 – 15.20     EFFECT OF PODS ON THE ROLL BEHAVIOUR OF PASSENGER VESSELS  
O.Turan, C.Tuzcu, D.Clelland, Z. Ayaz, SSRC, Universities of Strathclyde & Glasgow, UK

15.20 – 15.45     MANOEUVRING ASPECTS OF POD-DRIVEN SHIPS  
Z. Ayaz, O. Turan, D.Vassalos, SSRC, Universities of Strathclyde & Glasgow, UK

15.45 – 16.15     COFFEE BREAK – King’s Hall

Session four

ICE APPLICATIONS

Chairman: Björn Allenstrom, SSPA, Sweden

16.15 – 16.40     FULL SCALE PERFORMANCE OF DOUBLE ACTING TANKERS “TEMPERA & MASTERA”  
N. Sasaki, Sumitomo HI, Japan; J.Laapio, B.Fagerstrom, Fortum Oil and Gas, Finland; K.Juurmaa, G.Wilkman, MARC, Finland

16.40 – 17.05     DOUBLE ACTING TANKER – EXPERIENCES FROM MODEL TESTS AND SEA TRIALS  
P.Trägårdh, P.Lindell, SSPA, Sweden; N.Sasaki, Sumitomo HI, Japan
17.05 – 17.30  MEASURING PODDED PROPULSOR PERFORMANCE IN ICE
A.Akinturk, S.J.Jones, B.Rowell, D.Duffy, National Research Council, Institute for
Ocean Technology, Canada

17.30  End of technical sessions day one

17.45  Coach departs for the “Discovery Museum” trip – from King’s Walk
Delegates are asked to meet at King’s Walk (follow direction signs) where coaches
will transfer you to the Discovery Museum for the Conference Reception

18.00 – 20.00  Tour of “Discovery Museum” – Conference Reception
Day one reception will be hosted at Newcastle’s premier museum ‘Discovery’. At
the museum, Mr. Ian Whitehead will present the historical steam launch “Turbinia”;
famed as the first steam turbine propelled ship as developed by Sir Charles
Parsons. Further, the original cavitation tunnel used by Parsons to develop the
Turbinia will be on display.

20.00 – 20.15  Coaches will drop-off delegates at the key hotels used by the conference
delegates
# DAY TWO

**Thursday 15th April**

## Session five  
**Reynolds Averaged Navier-Stokes (RANS) Applications**

*Chairman: Prof Jan Andrew Szantyr, Technical University of Gdansk, Poland*

<table>
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<tr>
<th>Time</th>
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<tr>
<td>08.30</td>
<td>King's Hall open to receive delegates</td>
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<tr>
<td>9.10 - 09.35</td>
<td><strong>ON THE HYDRODYNAMIC DESIGN OF PODDED PROPULSORS FOR FAST COMMERCIAL VESSELS</strong></td>
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<td>A.Sánchez-Caja, J.V.Pylkkanen, VTT Industrial Systems, Finland</td>
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<td>09.35 – 10.00</td>
<td><strong>NUMERICAL SIMULATIONS OF FLOWS AROUND A SHIP WITH PODDED PROPULSOR</strong></td>
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<td>K.Ohashi, T.Hino, National Maritime Research Institute, Japan</td>
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<tr>
<td>10.00 – 10.25</td>
<td><strong>ON A PROPULSION PREDICTION PROCEDURE FOR SHIPS WITH PODDED PROPULSORS USING RANS-CODE ANALYSIS</strong></td>
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<td>I.A.Chicherin, M.Lobatchev, A.V.Pustoshny, Krylov Shipbuilding Research Institute, Russia, A.Sánchez-Caja, VTT, Finland</td>
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<td>10.25 – 10.50</td>
<td><strong>FLUCTUATING PRESSURE DISTRIBUTION ON POD</strong></td>
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<td>F.Deniset, J-Y.Billard, R.Jaouen, Institut de Recherche de l'Ecole Navale, France</td>
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<td>J-M.Laurens, ENSIETA, France</td>
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<td>10.50 – 11.20</td>
<td><strong>Coffee Break – King’s Hall</strong></td>
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## Session six  
**Contra-Rotating Propulsion**

*Chairman: Jürgen Friesch, HSVA, Germany*

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<th>Time</th>
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<td>11.20 – 11.45</td>
<td><strong>ON THE DESIGN OF A SHAFTED PROPELLER PLUS ELECTRIC THRUSTER CONTRA-ROTATING PROPULSION COMPLEX</strong></td>
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<td>V.A.Bushkovsky, I.Frolova, S.V.Kaprantsev, A.V.Pustoshny, A.V.Vasiljev, A.J.Jacolev, Krylov Shipbuilding Research Institute, Russia, T. Veikonheimo, ABB, Finland</td>
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<td>11.45 – 12.10</td>
<td><strong>CALCULATION METHOD FOR THE STEERING FORCES OF A POD IN HYBRID PROPULSION</strong></td>
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<td>P.Ruponen, J.Matusiak, Helsinki University of Technology, Finland</td>
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12.10 – 12.35  STUDY ON THE POWERING PERFORMANCE EVALUATION FOR THE CRP-POD PROPULSION SHIPS
G.Seokcheon, S.Heungwon, B.J.Chang, Hyundai HI, Korea

12.35 – 13.00  PROPULSIVE PERFORMANCE OF A CONTRA-ROTATING PODDED PROPULSOR
Y.Ukon, K.Ohashi, J.Fujisawa, J.Hasegawa, NMRI, Japan

13.00 – 14.00  Lunch Buffet – King’s Hall

Hydrodynamic Laboratory – Delegates are invited to tour the University Hydrodynamic Laboratory (follow direction signs) where tunnel personnel will be available to answer your questions.

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**Session seven**  
**Manoeuvring Loads**

*Chairman: Dr Noriyuki Sasaki*, Sumitomo Heavy Industries, Japan

14.30 – 14.55  INVESTIGATIONS ABOUT THE FORCES AND MOMENTS AT PODDED DRIVES
H.J.Heinke, Potsdam Ship Model Basin (SVA), Germany

14.55 – 15.20  PRELIMINARY RESULTS OF TESTING ON THE DYNAMICS OF AN AZIMUTHING PODDED PROPULSOR RELATING TO VEHICLE MANOEUVRING
J.W.Stettler, F.S.Hover, M.S.Triantafyllou, Massachusetts Institute of Technology, USA

15.20 – 15.45  A COMPARISON OF THE STOPPING MODES FOR POD DRIVEN SHIPS
M.D.Woodward, M.Atlar, D.Clarke, University of Newcastle, UK

15.45 – 16.15  Coffee Break – King's Hall

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**Session eight**  
**Manoeuvring Response**

*Chairman: Prof Kuniharu Nakatake*, Kyushu University, Japan

16.15 – 16.40  OPEN WATER EXPERIMENTS WITH TWO POD PROPULSOR MODELS
M.Grygorowicz, J.A.Szantyr, Gdansk University of Technology, Poland

16.40 – 17.05  MANOEUVRABILITY TESTS OF A VESSEL WITH POD PROPULSION
L.Kobylinski, Foundation for Safety and Environment Protection, Poland
17.05 – 1730  SELECTED ASPECTS OF POD PROPULSOR WORK IN OPERATIONAL CONDITIONS  
J. Kanar, Ship Design and Research Centre – CTO, Poland

17.30  End of technical sessions day two

19.15 – 19.45  Cocktail Reception – Council Chambers, Armstrong Building  
Delegates are invited to pre-Dinner drinks in the Council Chambers, adjacent to the main entrance of King’s Hall

19.45 – 20.30  Music Recital – King’s Hall  
Gulsin & Erkin Onay perform for your listening pleasure a recital including works by Fazil Say and Johannes Brahms

20.30 – 22.30  Conference Banquet – King’s Hall
**DAY THREE**  
**Friday 16th April**

### Session nine  
**Operational Technology**

**Chairman:** John Carlton, Lloyd’s Register, UK

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<tr>
<td>09.10 – 09.35</td>
<td>CAVITATION AND VIBRATION INVESTIGATIONS FOR PODDED DRIVES</td>
<td>J.Friesch, Hamburg Ship Model Basin, Germany</td>
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<td>09.35 – 10.00</td>
<td>PODDED RUDDERS</td>
<td>A.Junglewitz, O.el Moctar, S.Franic, Germanischer Lloyd, Germany</td>
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<td>10.00 – 10.25</td>
<td>NUMERICAL MODEL FOR NAVAL POD</td>
<td>J.F.Sigrist, C.Gervot, C.Laine, J.F.Le Bert, R. Barbarin, DCN Propulsion, France</td>
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<td>10.25 – 10.50</td>
<td>EXPERIENCE OF FESTIVAL CRUISES OPERATING POD DRIVEN SHIPS</td>
<td>T.C.Kontes, C.Th. Kontes, Festival Cruises, Greece</td>
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<td>10.50 – 11.20</td>
<td>Coffee Break – Music Library</td>
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### Session ten  
**Experimental Technology**

**Chairman:** Dr Jon Eaton, ARL Penn State, USA

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<tr>
<td>11.20 – 11.45</td>
<td>DESIGN OF A MODEL POD TEST UNIT</td>
<td>A.MacNeill, Oceanic Consulting Corp, Canada</td>
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<td>R.Taylor, S.Molloy, N.Bose, B.Veitch, Memorial University, Canada</td>
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<td>T.Randell, P.Liu, NRC-IOC, Canada</td>
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<td>11.45 – 12.10</td>
<td>SYSTEMATIC GEOMETRIC VARIATION OF PODDED PROPULSOR MODELS</td>
<td>S.Molloy, N.Bose, B.Veitch, R.Taylor, Memorial University, Canada</td>
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<td>A MacNeill, Oceanic Consulting Corp., Canada</td>
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<td>12.10 – 12.35</td>
<td>NUMERICAL AND EXPERIMENTAL INVESTIGATION TOOLS FOR PRELIMINARY DESIGN OF PODDED PROPULSOR COMPONENTS</td>
<td>F.DiFelice, M.Felli, L.Greco, F.Pereira, F.Salvatore, C.Testa, INSEAN- Italian Ship Model Basin, Italy</td>
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<td>12.35 – 13.00</td>
<td>EXPERIMENTAL INVESTIGATION OF FLOW FIELD AROUND A PODDED PROPULSOR USING LDA</td>
<td>D.Wang, M.Atlar, EJ Glover, I Paterson, University Newcastle, UK</td>
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<td>13.00 – 14.00</td>
<td>Lunch Buffet – University Ballroom</td>
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14.00 – 14.25  ON PROPULSIVE PERFORMANCE OF A SMALL BULK-CARRIER MODEL WITH TWIN PODDED PROPELLERS  
K. Nakatake, J. Ando, A. Yoshitake, Y. Sato, Kyushu University, Japan; M. Tamashima, Fluid Techno Co., Japan

14.25 – 14.50  NUMERICAL INVESTIGATION ON HYDRODYNAMIC PERFORMANCE OF PODDED PROPELLER  
M. Islam, R. Taylor, J. Quinton, B. Veitch, N. Bose, Memorial University, Canada  
B. Colbourne, P. Liu, Institute for Ocean Technology, Canada

14.50 – 15.15  RESEARCH ON HYDRODYNAMIC COMPUTATIONAL OF POD PROPULSION  
C. Ma, Z. Qian, Naval Research Centre, China; C. Yang, Shanghai Jiao Tong University, China; X. Zhang, D. Du, Naval Research Centre, China

15.15  Conference Closing