



15th International Congress on Marine Corrosion and Fouling

organised by Newcastle University on behalf of

Comité International Permanent pour la Recherche sur
la Préservation des Matériaux en Milieu Marin (COIPM)

PROGRAMME and ABSTRACTS

The Sage Gateshead
25-29th July 2010

Sponsors

The organisation of this conference would not have been possible without the generous support of our sponsors:

Office of Naval Research
Office of Naval Research Global
International Paint Ltd.
Dow Microbial Control
Hempel A/S
Jotun
Lanxess AG
I-Tech AB
Wiley-Blackwell

Exhibitors

Gelest – US producer of silanes, silicones and metal-organics

I-Tech AB – Swedish marine paint and marine antifouling technology company

Taylor & Francis – international academic publishers

Organisation

Congress Chairman

Professor Tony Clare, Newcastle University

Local Organising Committee

Professor Mehmet Atlar, Newcastle University

Dr Maureen Callow, University of Birmingham

Miss Victoria Coulson, Newcastle University

Dr Claire Hellio, University of Portsmouth

Mrs Jayne Masterson, Newcastle University

Dr Justin Perry, Northumbria University

Dr David Williams, International Paint Ltd.

Conference Support

School of Marine Science & Technology, Newcastle University

NewcastleGateshead Initiative

SAGE Faculty Office, Newcastle University

Benchmark Communications Ltd.

... and a special thanks to staff at The Sage Gateshead

Programme

| SUNDAY, 25 th JULY | | | |
|-------------------------------|---|-------------|--|
| 16.00-19.00 | Registration (Concourse, The Sage Gateshead) | | |
| MONDAY, 26 th JULY | | | |
| 08.00-08.45 | Registration (Concourse, The Sage Gateshead) | | |
| 08.45-09.00 | Welcome | | |
| 09.00-09.40 | 26-H2-P:Plenary session (Hall Two) - Schultz: Economic impact of biofouling on a naval ship | | |
| 09.40-10.00 | Refreshment break | | |
| | Session 1 (Hall Two) | | Session 2 (Barbour) |
| | <i>Hydrodynamics & ship efficiency (Swain)</i> | | <i>Biofouling in industrial cooling water systems (Bruijs)</i> |
| 10.00-10.15 | 26-H2-1-1:Haslbeck: US Navy evaluation of a fouling release coating: biofouling control, physical performance, and impact on fuel economy | 10.00-10.30 | 26-B-1-1: Rajagopal (keynote): Biofouling and its control in industrial cooling water systems: an overview of the present and a peek into the future |
| 10.15-10.30 | 26-H2-1-2:Hasselaar: Investigation into the development of an advanced ship performance monitoring and analysis system | | |
| 10.30-10.45 | 26-H2-1-3:Yebra: Fouling control products: value proposition and associated atmospheric pollution profile | 10.30-10.45 | 26-B-1-2: Wither: Industrial cooling water systems: discharge controls in the European Union |
| 10.45-11.00 | 26-H2-1-4:Klijnstra: Rapid screening of friction drag properties | 10.45-11.00 | 26-B-1-3: Venhius: Root-cause analyses of corrosion in heat-exchangers: a case study |
| 11.00-11.15 | 26-H2-1-5: Kanar: Innovative hydrodynamic approaches for drag properties evaluation of advanced antifouling coatings elaborated in nanotechnology fields, on basis of AMBIO project results | 11.00-11.15 | 26-B-1-4: Christiani: Monitoring by an electrochemical integrated system of corrosion and antifouling treatments on aluminum brass condenser tubes |
| 11.15-11.30 | 26-H2-1-6: Atlar: Boundary layer drag and surface roughness characteristics of nanostructured coatings | 11.15-11.30 | 26-B-1-5: Lamb: Electrolytic anti-fouling systems for pumped water intakes in the oil + gas industry |

| | | | |
|-------------|---|-------------|--|
| | on an axysymmetrical slender body tested in a cavitation tunnel | | |
| 11.30-11.45 | 26-H2-1-7: Gysel: The environmental benefits of surface treated coatings (STCs) | 11.30-11.45 | 26-B-1-6: Glazer: Characterization of the marine organisms on artificial substrates in a power plant in the southeastern Mediterranean |
| 11.45-12.00 | 26-H2-1-8: Senda: Drag reduction for ships due to polymer release from painted surface by Toms effect | 11.45-12.00 | 26-B-1-7: Venugopalan: Biofouling in Indian nuclear power plants – an overview of problems encountered and lessons learned |
| 12.00-12.15 | 26-H2-1-9: Sampson: Cavitation and open water performance analysis of two types of antifouling propeller coatings | 12.00-12.15 | 26-B-1-8: Macdonald: Industrial Cooling Seawater in the Middle East - a case study of operation optimisation and reduced environmental impact |
| 12.15-12.30 | 26-H2-1-10: Swain: The mechanics and hydrodynamics of fouling release coatings | 12.15-12.30 | General discussion |
| 12.30-14.00 | Lunch | | |
| | Session 3 (Hall Two) | | Session 4 (Barbour) |
| | Regulatory and environmental (Hunter) | | Marine bioadhesion (Wilker) |
| 14.00-14.30 | 26-H2-2-1: Hunter (keynote): Antifouling regulations – regulatory approach to minimise their impact on the environment – how far have we come since TBT? | 14.00-14.20 | 26-B-2-1: Wahl: Interfacial spectroscopy: in situ approaches to understand sticky contacts |
| 14.30-14.50 | 26-H2-2-2: Low: Current regulatory issues for antifouling products under the EU Biocidal Products Directive | 14.20-14.40 | 26-B-2-2: Aldred: Imaging temporary adhesion and surface exploration by barnacle cyprids |
| 14.50-15.10 | 26-H2-2-3: van Hattum: MAM-PEC – a generic model for environmental exposure modelling for antifouling biocides. Introduction to vs 3 | 14.40-15.00 | 26-B-2-3: Rittschof: Barnacle glue curing and organization of marine communities |
| 15.10-15.30 | 26-H2-2-4: Prowse: Use of environmental modelling to assess impact of changes in copper loading from | 15.00-15.20 | 26-B-2-4: Walker: Insights into the composition, morphology, and formation of the calcareous shell of |

| | | | |
|--------------------------------------|--|-------------|--|
| | antifoulings in Californian marinas | | the serpulid <i>Hydroides dianthus</i> |
| 15.30-16.00 | Refreshment break | | |
| 16.00-16.20 | 26-H2-2-5: Blanck: A proposed strategy for risk assessment of antifouling combinations in paint products | 16.00-16.20 | 26-B-2-5: Stewart: The Sandcastle glue of <i>Phragmatopoma californica</i> |
| 16.20-16.40 | 26-H2-2-6: Shibata: Prediction of environmental concentration for a photo-degradable anti-fouling agents | 16.20-16.40 | 26-B-2-6: Flammang: The cement of sabellariid tube-dwelling polychaetes: A complex composite adhesive material |
| 16.40-17.00 | 26-H2-2-7: Long: Advances in understanding of copper in the environment and the impact on its regulation | 16.40-17.00 | 26-B-2-7: Elwing: Adsorption and cross-linking of marine bioadhesives |
| 17.00-17.20 | 26-H2-2-8: Lindblad: Environmental risk assessment of Metatomodine – an effective metal-free antifouling biocide | 17.00-17.20 | 26-B-2-8: Cha: Mussel bioadhesion: Study using recombinant mussel adhesive proteins and their coacervated forms |
| 17.20-17.40 | 26-H2-2-9: Taylor: Release rate of copper pyrithione from coated fish nets – comparison of results from a modified test procedure modelled after ASTM D6903 | 17.20-17.40 | 26-B-2-9: Wilker: Chemical insights on how marine biological materials stick |
| 18.00-20.00 | Welcome reception – Discovery Museum (sponsored by International Paint Ltd.) Buses leave The Sage at 17.45-18.00 | | |
| TUESDAY, 27th JULY | | | |
| 09.00-09.40 | 27-H2-P: Plenary session (Hall Two) – Williams: Fouling Control Technology: Changes through Tyne | | |
| 09.40-10.00 | Refreshment break | | |
| | Session 5 (Hall Two) | | Session 6 (Barbour) |
| | A) Industry perspective (Pereira) B) Aquaculture (Dürr) | | Lab/field assessments of antifouling coating technologies (Stafslie) |
| 10.00-10.15 | 27-H2-1-1: Tomasgaard: New generation of copper (I) oxide for antifouling paints | 10.00-10.30 | 27-B-1-1: Rittschof (keynote): A perspective from 2 decades of academic lab and field-testing of experimental and commercial coatings |
| 10.15-10.30 | 27-H2-1-2: Lindblad: Medetomidine – from lab bench research towards market introduction | | |
| 10.30-10.45 | 27-H2-1-3: Yebra: The | 10.30-10.45 | 27-B-1-2: Callow: |

| | | | |
|-------------|---|-------------|--|
| | winding road to commercial products - Hempel's experience | | Integration of laboratory and field testing within the AMBIO project |
| 10.45-11.00 | 27-H2-1-4: Risberg: Water uptake of commercial antifouling coatings with binders based on trialkylsilyl acrylates or metal acrylates/ carboxylates | 10.45-11.00 | 27-B-1-3: Coutinho: Testing an analogue of antifouling from a marine sponge |
| 11.00-11.15 | 27-H2-1-5: Touzot: A point at the operation for containership | 11.00-11.15 | 27-B-1-4: Anton: ECOPAINT PACA Project: Antifouling activity of biocidal compounds through bioassays and field immersion test |
| 11.15-11.30 | 27-H2-2-1: Dürr: Biofouling pressure at European aquaculture facilities over a 2-year period | 11.15-11.30 | 27-B-1-5: Webster: Correlation between lab assays and field testing results for siloxane-polyurethane fouling-release coatings |
| 11.30-11.45 | 27-H2-2-2: Guenther: The development of biofouling on commercial salmon cage nets in Mid-Norway | 11.30-11.45 | 27-B-1-6: Teo: Rapid field testing of foul-release coatings using a novel waterjet testing apparatus |
| 11.45-12.00 | 27-H2-2-3: Powell: Innovation in aquaculture cages using copper based alloys | 11.45-12.00 | 27-B-1-7: Stafslie: Rapid biological laboratory assessments of antifouling marine coating performance: their utility and relationship to static ocean immersion testing |
| 12.00-12.15 | 27-H2-2-4: Woods: Biofouling on Greenshell™ mussel (<i>Perna canaliculus</i>) farms: a preliminary assessment and potential implications for sustainable aquaculture practices | 12.00-12.15 | 27-B-1-8: Salta: Bioassay screening and imaging for antifouling performance of novel natural products |
| 12.15-12.30 | 27-H2-2-5: Filtridge: Foul play or facilitation? The impact of hydroid biofouling on mussel aquaculture in Port Phillip Bay, Australia | 12.15-12.30 | 27-B-1-9: Camps: A reliable marine antifouling bioassay based on in vitro adhesion: comparison of the response of five pioneer bacteria |
| 12.30-14.00 | Lunch | | |
| | Session 7 (Hall Two) | | Session 8 (Barbour) |
| | New technologies to | | General aspects of fouling I |

| | control fouling (Callow) | | (tbc) |
|-------------|--|-------------|---|
| 14.00-14.30 | 27-H2-3-1: Brennan (keynote): Biomimetic microtopographies – A green, antifouling technology | 14.00-14.20 | 27-B-2-1: Zargiel: Variation in diatom community structure on antifouling and fouling release coatings from three static immersion test sites in Florida |
| 14.30-14.45 | 27-H2-3-2: Walker: Water-stable diblock polystyrene-block-poly(2-vinyl pyridine) and diblock polystyrene-block-poly(methyl methacrylate) cylindrical patterned surfaces inhibit settlement of zoospores of the green alga <i>Ulva</i> | 14.20-14.40 | 27-B-2-2: Briand: What is the influence of the nature of submerged artificial surfaces on the structure of microbial biofilm communities? |
| 14.45-15.00 | 27-H2-3-3: Galli: Macromolecular engineering of nanostructured-surface films with amphiphilic copolymers for application in marine biofouling release coatings | 14.40-15.00 | 27-B-2-3: Satheesh: Extracellular polymeric substance synthesis by bacteria during adhesion on surfaces: Influence of substratum variability and environmental factors |
| 15.00-15.15 | 27-H2-3-4: Ober: Ambiguous, amphiphilic surfaces for fouling resistant coatings | 15.00-15.20 | 27-B-2-4: Dreanno: A new marine biofilm forming model: <i>Pseudoalteromonas haerens</i> |
| 15.15-15.30 | 27-H2-3-5: Wooley: Nanoscopically-complex, amphiphilic, non-toxic antifouling marine coatings: From hyperbranched fluoropolymer-poly(ethylene glycol)-derived networks to new generation materials | | |
| 15.30-16.00 | Refreshment break | | |
| 16.00-16.15 | 27-H2-3-6: Majumdar: Polysiloxanes with tethered quaternary ammonium salts as novel antifouling/fouling-release coatings | 16.00-16.20 | 27-B-2-5: Goodes: Determination of distribution of paint additives and assessment of their leaching rates using Laser Scanning Confocal Microscopy |
| 16.15-16.30 | 27-H2-3-7: Jiang: Development of environmentally benign, durable and effective ultra low fouling marine coatings | 16.20-16.40 | 27-B-2-6: Dobretsov: Inhibition of biofouling by quorum sensing inhibitors |

| | | | |
|-------------|--|-------------|---|
| 16.30-16.45 | 27-H2-3-8: Scardino: Novel technologies to reduce biofouling on vessels when in port | 16.40-17.00 | 27-B-2-7: Palanisamy: A comparative study on the antifouling activity of Indian and Caribbean Sea grasses extracts |
| 16.45-17.00 | 27-H2-3-9: Wang: Preparation and topography observation of faveolate microstructure surface antifouling material | 17.00-17.20 | 27-B-2-8: da Gama: Antifouling activity in <i>Sargassum vulgare</i> : within-thallus variation and polyphenolic content |
| 17.00-17.15 | 27-H2-3-10: Jonsson: A new antifouling technology based on oxygen depleted surfaces | 17.20-17.40 | 27-B-2-9: Thabord: <i>Sargassum polyceratium</i> chemical and physical impact on major coral reef invertebrate recruitment in Martinique (FWI) |
| 17.15-17.30 | 27-H2-3-11: Dahlström: Anti-barnacle effect of medetomidine in soft and hard coatings | | |
| 18.30-10.00 | Poster session (Northern Rock Foundation Hall) | | |
| | P1: CUMBOR ET AL. : EVALUATION OF HEAVY METAL AND TBT CONTAMINATION ASSOCIATED WITH SHIPPING IN MUSSELS AND SEDIMENT ALONG THE WEST COAST OF THE UK | | |
| | P2: ZHANG XIAODAN: AN ANTIFOULING-PAINTS PROJECT IN CHINA AND CHINA GREEN LABELING STANDARD FOR ANTIFOULING PAINTS | | |
| | P3: SUGDEN ET AL.: COMPLEX INTERACTIONS BETWEEN ABIOTIC DISTURBANCE AND SURFACE REFUGE AND SHAPE DETERMINE THE SETTLEMENT OF MARINE PROPAGULES | | |
| | P4: VON WALDEGGE: VARIABILITY AND SUCCESSION OF FOULING AND CORROSION ON COATINGS AND ADHESIVES AT DIFFERENT TEST SITES IN THE GERMAN NORTH SEA | | |
| | P5: SOLOMON: FOULING CONTROL : MAKING THE ECO-EFFICIENT CHOICE | | |
| | P6: PENG ET AL.: EFFECT OF INHIBITING WASHES ON COATING CHARACTERS BASED ON ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY | | |
| | P7: BIN ET AL.: STUDY ON THE ANTI-CORROSION PERFORMANCE OF ORGANIC COATINGS UNDER SIMULATED DEEP SEA ENVIRONMENT | | |
| | P8: MESSANO ET AL.: THE INFLUENCE OF MARINE MICROFOULING COMMUNITY ON THE OPEN CIRCUIT POTENTIAL BEHAVIOR OF A DUPLEX STAINLESS STEEL UNDER FIELD AND LABORATORY CONDITIONS | | |
| | P9: MCBETH ET AL.: IRON-OXIDIZING ZETAPROTEOBACTERIA ASSOCIATED WITH STEEL CORROSION IN NEARSHORE MARINE ENVIRONMENTS | | |
| | P10: CHAW ET AL.: FEASIBILITY STUDY OF AN AUTOMATED ONLINE CLEANING SYSTEM FOR SEAWATER HEAT EXCHANGERS | | |
| | P11: DÜRR ET AL.: SILICONE COATINGS AND CLEANING - ANTIFOULING STRATEGY FOR FISH NETS AND OYSTER TRAYS | | |
| | P12: MARTIN: ANTIFOULING COATINGS FOR WAR SHIPS (ACWS) | | |
| | P13: MARIMUTHU ET AL.: EFFICACY OF SOFT CORAL CRUDE EXTRACTS AGAINST THE FOULER – AN ANTIFOULING APPROACH | | |
| | P14: MARANDA ET AL.: EFFICACY OF AN ISOTHIAZOLIN COMPOUND AS A | | |

| |
|--|
| FOULING DETERRENT: RESPONSE OF A PENNATE DIATOM |
| P15: YANG ET AL.: LARVAL METAMORPHOSIS OF THE MUSSEL <i>MYTILUS GALLOPROVINCIALIS</i> LAMARCK, 1819 IN RESPONSE TO NEUROTRANSMITTER BLOCKERS AND TETRAETHYLAMMONIUM |
| P16: THOMÉ ET AL.: CHEMISTRY-DEPENDENT SURFACE CONDITIONING AND ITS IMPLICATION FOR SETTLEMENT OF SPORES OF THE GREEN ALGA <i>ULVA</i> |
| P17: PETRONE ET AL.: IN SITU ATR-IR SPECTROSCOPIC AND ELECTRON MICROSCOPIC ANALYSES OF <i>UNDARIA PINNATIFIDA</i> SPORE SETTLEMENT |
| P18: MCMONAGLE: OUTER SHIP HULL CHARACTERIZATION USING PHOTOMETRIC ANALYSIS |
| P19: COOGAN & SWAIN: MACROFOULING COMMUNITIES ON FOULING RELEASE COATINGS FROM THREE STATIC IMMERSION TEST SITES IN FLORIDA |
| P20: RAHMAN ET AL.: WATERBORNE POLYSILOXANE-URETHANE-UREA FOR POTENTIAL MARINE COATINGS |
| P21: ALDRED ET AL.: EFFECTS OF SURFACE TEXTURE ON THE ATTACHMENT STRENGTH OF BARNACLES AND THEIR LARVAE |
| P22: FINLAY ET AL.: THE MAPPING OF ALGAL ATTACHMENT SITES ON MICRO-PATTERNED SURFACES |
| P23: COOPER ET AL.: KINETIC ATTACHMENT OF <i>ULVA</i> ZOOSPORES TO TOPOGRAPHICALLY MODIFIED SURFACES |
| P24: RAMASUBBURAYAN ET AL.: EVIDENCE FOR THE ANTIFOULING ACTIVITY OF SELECTED MANGROVES |
| P25: HAYES ET AL.: POTENTIAL OF MICROALGAE EXTRACTS FOR ANTIFOULING APPLICATION: PRELIMINARY RESULTS |
| P26: VANCE & THOMASON: AN ENVIRONMENTALLY BENIGN METHOD FOR PREVENTING FOULING |
| P27: XUE & JIANG: ZWITTERIONIC-BASED MATERIALS AS ENVIRONMENTALLY BENIGN, DURABLE AND EFFECTIVE ULTRA LOW FOULING MARINE COATINGS |
| P28: COLAK & TEW: NOVEL DUALY FUNCTIONAL ZWITTERIONIC POLYMERS AND THEIR ANTI-BIOFOULING PROPERTIES |
| P29: BRYANT ET AL.: SURFACE CHARACTERISTICS OF MULTI-COMPONENT XEROGELS WITH AND WITHOUT SEQUESTERED SELENOXIDE CATALYST AND THEIR EFFECTS ON BIOFOULING |
| P30: SOKOLOVA ET AL.: ALKYL CHAIN LENGTHS AND RATIOS: FACTORS IN CREATING A XEROGEL WITH SURFACE CHARACTERISTICS SUITABLE FOR BARNACLE REMOVAL |
| P31: GARCIA ET AL.: INHIBITION OF BYSSAL THREAD FORMATION OF <i>LIMNOPERNA FORTUNEI</i> BY NATURAL PRODUCTS ISOLATED FROM THE BROWN ALGA <i>DICTYOTA DICHOTOMA</i> |
| P32: PÉREZ ET AL.: APPROACHES TO MARINE BIOFOULING CONTROL BY THYMOL BASED PAINTS |
| P33: STUPAK ET AL.: EFFECT OF THYMOL ON INVASIVE GOLDEN MUSSEL <i>LIMNOPERNA FORTUNEI</i> |
| P34: YUNLU ET AL.: NOVEL BORON CONTAINING ANTIFOULING PAINTS |
| P35: BLIHOGUE & ILAN: ANTI-MICROFOULING ACTIVITY FROM MARINE SPONGE-ASSOCIATED BACTERIA |
| P36: BLIHOGUE ET AL.: ANTIFOULING ACTIVITY OF TERPENES ISOLATED FROM MARINE INVERTEBRATES |

| | | | |
|-------------|--|-------------|---|
| | P37: ZHENG JIYONG ET AL: ANTI-DIATOM ACTIVITIES OF RESIN BASED COATINGS CONTAINING CRUDE EXTRACT OF GREEN ALGAL <i>ULVA PERTUSA</i> | | |
| | P38: BLIHOGUE ET AL.: ARE ALKYLPIRIDINE-BASED COMPOUNDS SUITABLE BIOCIDES FOR ANTIFOULING PAINTS? | | |
| | P39: ANTON ET AL.: ECOPAINT PACA PROJECT: NEW TECHNOLOGIES OF NON-TOXIC ANTIFOULING PAINTS | | |
| | P40: ARRHENIUS: COMBINED EFFECTS OF ANTIFOULANTS – SYNERGISTIC, ADDITIVE OR ANTAGONISTIC EFFECTS? | | |
| | P41: WENDT ET AL.: THE EFFICACY OF ANTIFOULING BIOCIDES: A SYSTEMATIC APPROACH | | |
| | P42: KANIA & KANAR: MEASUREMENTS OF ROUGHNESS OF NEW ANTIFOULING COATINGS FOR SHIPBUILDING INDUSTRY ELABORATED WITHIN THE AMBIO PROJECT | | |
| | P43: BENDAOU ET AL.: PHOTOSYNTHETIC SYMBIONTS OF SPONGE : CHARACTERISATION AND IMPLICATION IN THE PREVENTION OF FOULING | | |
| | P44: MARIMUTHU: BIOFOULING STUDIES DURING WRECK DIVING AT GRANDE ISLAND OF GOA, WESTCOAST OF INDIA | | |
| | P45: GOHAD ET AL.: VISUALIZING ADRENERGIC RECEPTORS ON THE SENSORY ORGANS OF OYSTER AND BARNACLE SETTLEMENT STAGE LARVAE | | |
| | P46: GALLUS ET AL.: PRESENCE OF NMDAR1 RECEPTOR IN THE CYPRID OF <i>BALANUS AMPHITRITE</i> (= <i>AMPHIBALANUS AMPHITRITE</i>) (CRUSTACEA, CIRRIPIEDIA) | | |
| | P47: THOMPSON ET AL.: NO STICKING! NITRIC OXIDE REDUCES THE ADHESION OF FOULING ALGAE | | |
| | P48: HOLM & HASLBECK: EFFECT OF REPEATED CLEANINGS USING MULTIPLE TOOLS ON CONDITION OF A FOULING-RELEASE COATING | | |
| | P49: QUINIOU ET AL.: TESTING METHODS TO ASSESS BOTH THE EFFICACY AND ECOTOXICITY OF ANTIFOULING COATINGS | | |
| | P50: SHANKAR & PUNITHA: ANTIFOULING ACTIVITY OF THREE BACTERIAL STRAINS ASSOCIATED WITH MARINE SPONGE | | |
| | P51: STAPATHY ET AL.: BIOFOULING AND ITS CONTROL IN THE COOLING WATER SYSTEM OF PROTOTYPE FAST BREEDER REACTOR - A TROPICAL MARINE ENVIRONMENT CASE STUDY | | |
| | ADDITIONAL POSTERS IN WELCOME PACK | | |
| | WEDNESDAY, 28th JULY | | |
| 09.00-09.40 | 28-H2-P: Plenary session (Hall Two) – Little: The Study of Microbiologically Influenced Corrosion in Marine Environments – A Sea Change | | |
| 09.40-10.00 | Refreshment break | | |
| | Session 9 (Hall Two) | | Session 10 (Barbour) |
| | <i>New developments in fouling-release technology (Webster)</i> | | <i>Marine corrosion - materials (Little)</i> |
| 10.00-10.30 | 28-H2-1-1: Anderson (keynote): Innovation in foul release: more about doing, less about dreaming | 10.00-10.15 | 28-B-1-1: Francis: The performance of superduplex stainless steel in different types of seawater |
| | | 10.15-10.30 | 28-B-1-2: Powell: Long term studies of the performance |

| | | | |
|-------------|---|-------------|--|
| | | | of copper-nickel alloy sheathing for the splash zone corrosion protection of offshore structures |
| 10.30-10.45 | 28-H2-1-2: Lin: Study on the antifouling ability improvement of silicone-based coating with poly (acrylamide-silicone) | 10.30-10.45 | 28-B-1-3: Xiaoyan: Material database on corrosion control technology and protection of ocean engineering structures |
| 10.45-11.00 | 28-H2-1-3: Baum: Foul release performance of flow point defined physical gels prepared from poly(dimethylsiloxane) | 10.45-11.00 | 28-B-1-4: Kanematsu: Biofouling of chromium and nickel based materials in marine environment |
| 11.00-11.15 | 28-H2-1-4: Chisholm: Novel, amphiphilic polysiloxane fouling-release coatings | 11.00-11.15 | 28-B-1-5: Kawakami: Bacterial adhesion to copper alloyed antibacterial stainless steel surfaces |
| 11.15-11.30 | 28-H2-1-5: Tribou: Investigation of grooming tools for ship hull coating maintenance | 11.15-11.30 | 28-B-1-6: Kanematsu: Biofouling on EAF stainless steel oxidizing slag in marine environment |
| 11.30-11.45 | 28-H2-1-6: Murosaki: Observation of barnacle settlement and growth process on soft and wet hydrogels | 11.30-11.45 | 28-B-1-7: Makama: Cathodic delamination of cable connector assemblies: mechanisms, materials and testing protocols |
| 11.45-12.00 | 28-H2-1-7: Majumdar: Novel antimicrobial, antifouling/fouling-release coatings containing quat-functional POSS compounds | 11.45-12.00 | 28-B-1-8: Bruin: Using electrochemical impedance spectroscopy and microscopy for evaluation of ballast tank coating degradation by microorganisms |
| 12.00-12.15 | 28-H2-1-8: Webster: Tough fouling-release coatings based on self-stratification | 12.00-12.30 | Q&A |
| 12.15-12.30 | 28-H2-1-9: Conlan: The effect of modulus and thickness of polydimethylsiloxane coatings on the settlement and adhesion of <i>B. amphitrite</i> | | |
| 12.30-14.00 | Lunch | | |
| | Session 11 (Hall Two) | | Session 12 (Barbour) |
| | <i>Biocidal antifouling technology (Finnie)</i> | | <i>Microbiologically - influenced corrosion (Little)</i> |
| 14.00-14.30 | 28-H2-2-1: Ashmore: Sea-Nine(TM) CR: a new, microencapsulated marine | 14.00-14.30 | 28-B-2-1: Johnston: Biodeterioration of the RMS Titanic, microbiological |

| | | | |
|-------------|--|-------------|--|
| | antifouling product | | assessment, 1996 to 2010 |
| 14.30-14.45 | 28-H2-2-2: Nydén (on behalf of Nordstierna): New approach to microcapsule synthesis – replacement of a hazardous chemical | 14.30-14.45 | 28-B-2-2: Rao: Microbially induced localized corrosion of type 316L stainless steel in a recirculating seawater system |
| 14.45-15.00 | 28-H2-2-3: Nydén: Release from painted surfaces: Free and encapsulated biocides | 14.45-15.00 | 28-B-2-3: Campbell: Electrochemical and microbiological contributions to the corrosion of 70/30 CuNi Alloys in seawater |
| 15.00-15.15 | 28-H2-2-4: Backhaus: Employing classical mixture toxicity concepts for the optimization of biocide combinations for antifouling paints | 15.00-15.15 | 28-B-2-4: Jeffrey: The effect of sterilisation on the corroding of mild steel in coastal seawater |
| 15.15-15.30 | Q&A | 15.15-15.30 | Q&A |
| 15.30-16.00 | Refreshment break | | |
| 16.00-16.15 | 28-H2-2-5: Jackson: Development of antifouling paints for newbuildings - more than just good antifouling performance | 16.00-16.15 | 28-B-2-5: Duan: Corrosion mechanism driven by marine electro-active biofilm |
| 16.15-16.30 | 28-H2-2-6: Bressy: Aqueous-based acrylic miniemulsions: a family of seawater erodible polymers with tunable mechanical and erosion properties | 16.15-16.30 | 28-B-2-6: Miyano: The study of biofilm formation and the electrochemical behavior of some metals in natural marine water |
| 16.30-16.45 | 28-H2-2-7: Hellio: New functionalized oligoisoprenes based flexible antifouling coatings with antimicrobial properties | 16.30-16.45 | 28-B-2-7: Kumar: Etching initiated corrosion of stainless steel 316L by the cement of the barnacle, <i>Amphibalanus reticulatus</i> |
| 16.45-17.00 | 28-H2-2-8: Pinori: Post Settlement Inhibition (PSI) of barnacle growth, <i>Balanus improvisus</i> . A novel approach in marine anti-fouling control | 16.45-17.00 | 28-B-2-8: Lee: Novel MIC mechanisms associated with storage of alternative fuels in marine environments |
| 17.00-17.15 | 28-H2-2-9: Ramotowski: New, biofouling-resistant elastomers for acoustic applications | 17.00-17.15 | 28-B-2-9: Duan: Application of atomic force microscopy in the study of sulfate-reducing bacteria biofilm |
| 17.15-17.30 | Q&A | 17.15-17.30 | Q&A |
| 19.30-23.00 | Banquet (The Alnwick Garden) | | |

| | | | |
|--|--|-------------|---|
| | Buses leave The Sage at 18.30 | | |
| THURSDAY, 29th JULY | | | |
| 09.00-09.40 | 29-H2-P: Plenary session (Hall Two) – Hewitt: Biofouling as a modern vector of invasions: risky behaviours and management opportunities | | |
| 09.40-10.00 | Refreshment break | | |
| | Session 13 (Hall Two) | | Session 14 (Barbour) |
| | <i>Fouling as a vector for invasive species (Ruiz)</i> | | <i>General aspects of fouling II (Swain)</i> |
| 10.00-10.20 | 29-H2-1-1: Teo: Survey of sessile marine fouling organisms found on navigational buoys in Singapore's coastal waters | 10.00-10.20 | 29-B-1-1: Vance: The effect of ocean acidification upon macrofouling in a temperate marina |
| 10.20-10.40 | 29-H2-1-2: Wendt: Invasive bryozoans transported via hull fouling initiated a phase shift in a small California (USA) estuary | 10.20-10.40 | 29-B-1-2: Greco: How do crabs keep their eyes clean? The synergistic antifouling approach of <i>Carcinus maenas</i> |
| 10.40-11.00 | 29-H2-1-3: Davidson: Commercial ship biofouling as a transfer mechanism for species inoculations of the US Pacific Coast | 10.40-11.00 | 29-B-1-3: Pagett: Understanding the settlement of <i>Balanus amphitrite</i> through the characterisation of glycans involved in gregariousness |
| 11.00-11.20 | 29-H2-1-4: Johnson: Integrating antifouling strategies to minimize transport of marine invasive species by recreational boats | 11.00-11.20 | 29-B-1-4: Rosenhahn: Influence of physicochemical surface properties on the settlement of spores of the green alga <i>Ulva</i> studied by three dimensional holographic tracking |
| 11.20-11.40 | 29-H2-1-5: Ralston: The ghost of fouling communities past: evidence for carry-on effects on transplanted panels | 11.20-11.40 | 29-B-1-5: Birch: Exploratory response of <i>A. amphitrite</i> cyprids on micro pillars |
| 11.40-12.00 | 29-H2-1-6: Thomason: The relative risk of antifouling technologies for the transport of invasive species | 11.40-12.00 | 29-B-1-6: Magin: A predictive model for the attachment of marine organisms to microtopographies |
| 12.00-12.20 | 29-H2-1-7: Campbell: Slow moving barges: a risk assessment across domestic Australian borders | 12.00-12.20 | 29-B-1-7: Barlow: Functional amyloid in the adhesive of the barnacle <i>Balanus amphitrite</i> |
| END OF CONGRESS (Scientific Programme) See web site for post-Congress tours | | | |