EKMOA Webzine

Europe-Korea Marine and Ocean Engineers Association

Decemeber 2016

EKMOA Europe-Korea Marine and Ocean Engineers Association

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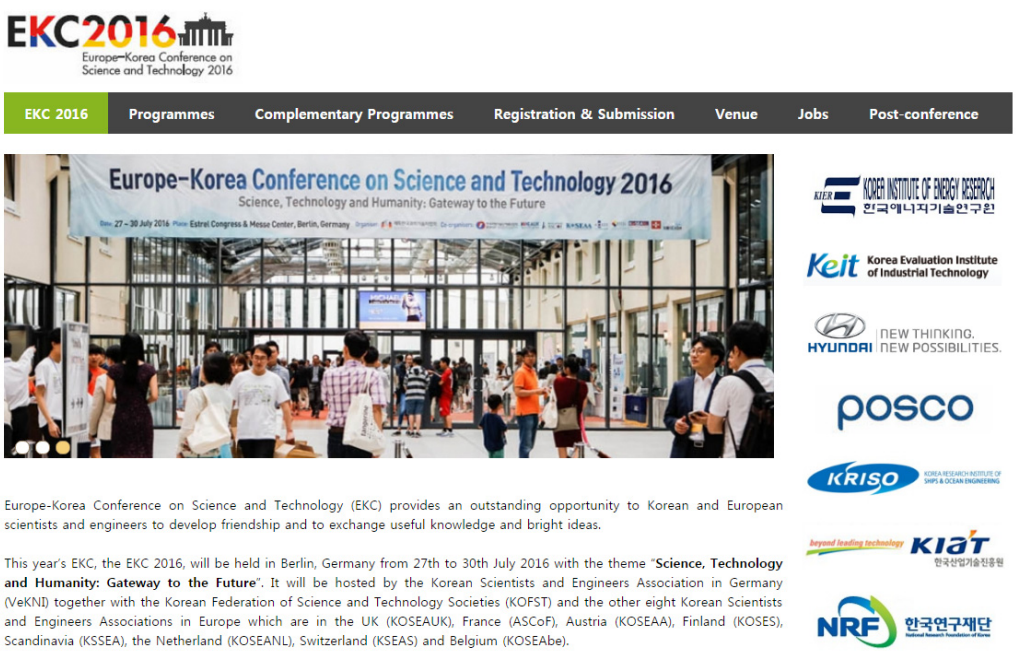
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Europe-Korea Conference on Science Technology 2016

Date	26 to 30 July 2016
Venue	Estrel Congress & Messe Center, Berlin, Germany
Participants	620 people attended EKC 2016 Berlin from Europe and Korea. Approximately 50 participants including 11 EKMOA members attended EKC 2016 S&T Group Ocean Engineering technical sessions.
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Europe-Korea Conference on Science and Technology (EKC) provides an outstanding opportunity to Korean and European scientists and engineers to develop friendship and to exchange useful knowledge and bright ideas.

This year's EKC, the EKC 2016, was held in Berlin, Germany from 26th to 30th July 2016 with the theme "Science, Technology and Humanity: Gateway to the Future". It was hosted by the Korean Scientists and Engineers Association in Germany (VeKNI) together with the Korean Federation of Science and Technology Societies (KOFST) and the other eight Korean Scientists and Engineers Associations in Europe which are in the UK (KOSEAUK), France (ASCoF), Austria (KOSEAA), Finland (KOSES), Scandinavia (KSSEA), the Netherland (KOSEANL), Switzerland (KSEAS) and Belgium (KOSEAbe).

For more information, please visit www.ekc2016.org

The EKC will be continued in the next years. The EKC 2017 will take place in Stockholm, Sweden, 26-29 July 2017.

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Photos



EKC 2016 Registration



EKC 2016 Opening Ceremony



EKC 2016 Closing Ceremony

Conference photos: http://www.ekc2016.org/home/index.php?mid=fotos

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EKMOA Foundation Ceremony and Annual General Meeting
EKC 2016 S&T Group Ocean Engineering Programme

Date	28 and 29 July 2016
Venue	Estrel Congress & Messe Center, Berlin, Germany
Participants	Foundation Ceremony: 50 people from Europe and Korea AGM: 16 people including 11 EKMOA members EKC 2016 S&T Group Ocean Engineering Programme: 50 including 11 EKMOA members

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EKMOA Foundation Ceremony & Annual General Meeting, 28 July 2016

	Thu. 28th July	Venue	Notes
18:00 to 18:30	EKMOA Foundation Ceremony	Estrel Hall Room C5	Everyone
18:30 to 19:30	K4EF AGM (18:30 to 19:00)	Estrel Hall Room C5	K4EF members only
	Dinner (18:30 to 19:30)	Estrel Hall	K4EF, EKMOA, KSEAUK, I-DREAM members
19:30 to 20:30	EKMOA AGM	Estrel Hall Room C5	EKMOA members only
20:30 to 23:00	Networking	Estrel Hall	K4EF and EKMOA members

here, EKMOA: Europe-Korea Marine and Ocean Engineers Association; K4EF: Korean Energy & Environment Expert Forum in Europe

EKMOA Foundation Ceremony

Welcome speech	Dr. Martin S. D. Yoo Europe-Korea Marine and Ocean Engineers Association, Germany
Congratulatory speeches (18:00 to 18:20)	Dr. Dong-Shik Shin Korea Maritime Consultants Co., Ltd., South Korea (keynote speech) Dr. Sang-Hyun Suh Korea Research Institute of Ships and Ocean Engineering, South Korea Dr. Jongmun Park Korean Scientists and Engineers Association in Austria, Austria Dr. Migeun Park Korean Scientists and Engineers Association in the UK, United Kingdom Prof. Atilla Incecik University of Strathclyde, United Kingdom
Photo time (18:20 to 18:30)	Estrel Hall Room C5

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Annual General Meeting

- Introduction on EKMOA (membership, activity and technical area, and etc.)
- Explanation and establishment of the Regulations of the Association
- Election of the first president and audit
  - The first president: Dr Yongwon Lee, Lloyd Resister
  - The first audit: Dr Gijae Yun, Offshore Consultant

EKC 2016 S&T Group Ocean Engineering Programme, 29 July 2016

Massive growth in global GDP brings big opportunities to the marine industry and world trade continues to rise in line with economic expansion. The volume of seaborne trade could be double within 20 years. Oil and natural gas is expected to account for 60 per cent of global demand for energy in 20 years. Advances in technology will be the keys to meet the growing demand for energy from more diverse sources. Moreover, the offshore renewable energy area such as offshore wind energy, wave energy, tidal energy, etc. is recently growing rapidly. This indicates growing challenges and opportunities to produce offshore oil and gas, and offshore renewable energy. Growth in the world economy also results in concern for environmental impact due to marine activities.

Group Ocean Engineering (EKMOA) concerns for ocean, marine technology, marine environment, green shipping, ocean/offshore technology, geo-technology, offshore renewable energy, safety, and reliability. The Group OE organised the following technical sessions in EKC 2016 Berlin.

- Marine Technology
- Ocean and Offshore Structures
- Poster Presentation

The sessions aim to review current state-of-the-art technology as well as discuss on future development and technology industrialisation with scientists, engineers, and policy decision makers from Korea and Europe. The Group OE (EKMOA) also provided opportunities for participants to find collaboration partners working in the fields.

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Photos



EKMOA Foundation Ceremony



EKMOA Foundation Ceremony



EKMOA Foundation Ceremony

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EKMOA AGM



EKC 2016 Group Photo



EKC 2016 Group Photo

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EKC 2016 S&T Group Ocean Engineering Session



EKC 2016 S&T Group Ocean Engineering Session



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EKC 2016 S&T Group Ocean Engineering Session



EKC 2016 S&T Group Ocean Engineering Session



EKC 2016 S&T Group Ocean Engineering Session

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Workshop on Ships and Offshore Structures 2016

Date	17 to 19 November 2016
Venue	The beehive, Newcastle University, Newcastle upon Tyne, UK
Participants	Total 47 people: EKMOA members, Pusan National University, Inha Universities, UK marine and ocean engineering experts, Embassy of Republic of Korea, KOSHIPA, and etc.
Contents	• WSOS 2016 Steering Committee Meeting • Keynote speech and four technical sessions in marine technology and ocean engineering • Reviewing current state-of-the-art technology and discuss on future development • Discussing collaboration of research, development and innovation with Researchers, engineers, and policy decision makers from Korea and UK/Europe. • Encouraging mutual understandings and cultivate friendship between Korea and UK/Europe. • Exchanging views on Korea-UK Dual Degree Programme • Introduction on EKMOA and EKC 2017 (26-29 July 2017, Stockholm, Sweden) • The next venue and date of WSOS: The 3rd WSOS, Glasgow, February 2018
Photos	

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Opening Speech



Keynote Speech



WSOS 2016 Presentation

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WSOS 2016 Presentation



WSOS 2016 Presentation



WSOS 2016 Presentation

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WSOS 2016 Presentation



WSOS 2016 Group Photo



WSOS 2016 Group Photo

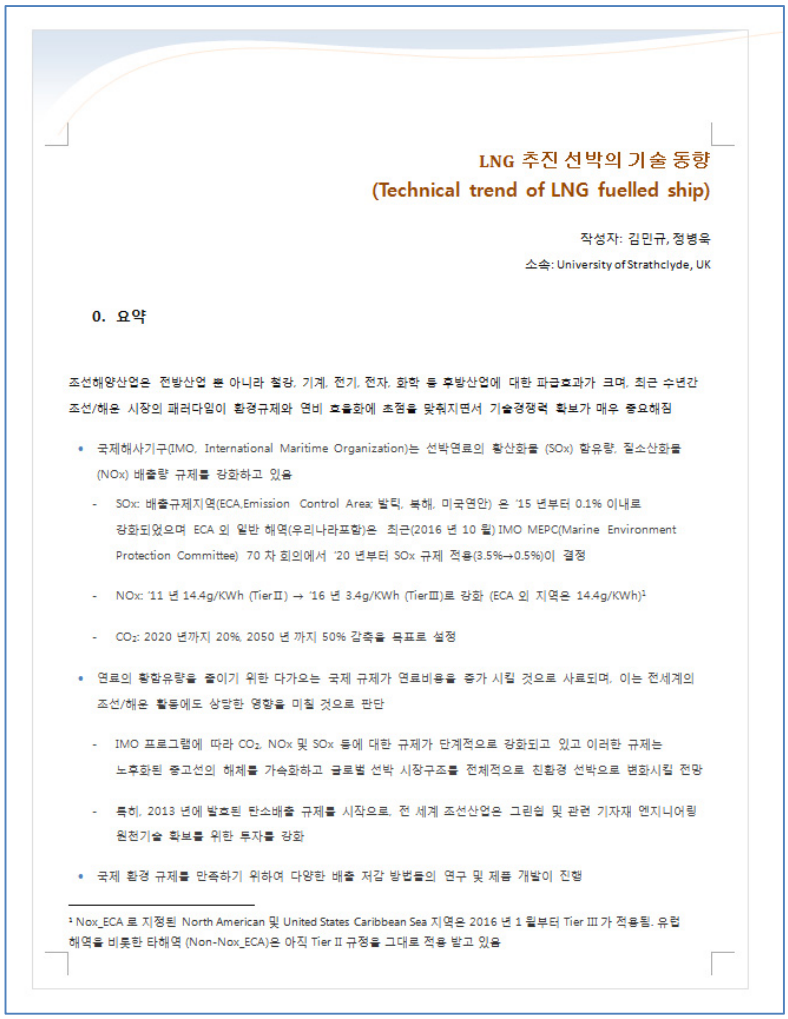
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R&D Trend Reports

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Technical Trend of LNG Fuelled Ship (Industrial Technology Strategy Brief)

- Sponsoring Institution: KIAT(Korea Institute for Advancement of Technology)
- Period: 27 September 2016 ~ 9 November 2016
- Authors: Dr Mingyu Kim, Mr Byongug Kim (University of Strathclyde, UK & EKMOA)



LNG 추진 선박의 기술 동향
(Technical trend of LNG fuelled ship)

작성자: 김민규, 정병욱
소속: University of Strathclyde, UK

0. 요약

조선해양산업은 전방산업 뿐 아니라 철강, 기계, 전기, 전자, 화학 등 후방산업에 대한 파급효과가 크며, 최근 수년간 조선/해운 시장의 패러다임이 환경규제와 연비 효율화에 초점을 맞춰지면서 기술경쟁력 확보가 매우 중요해짐

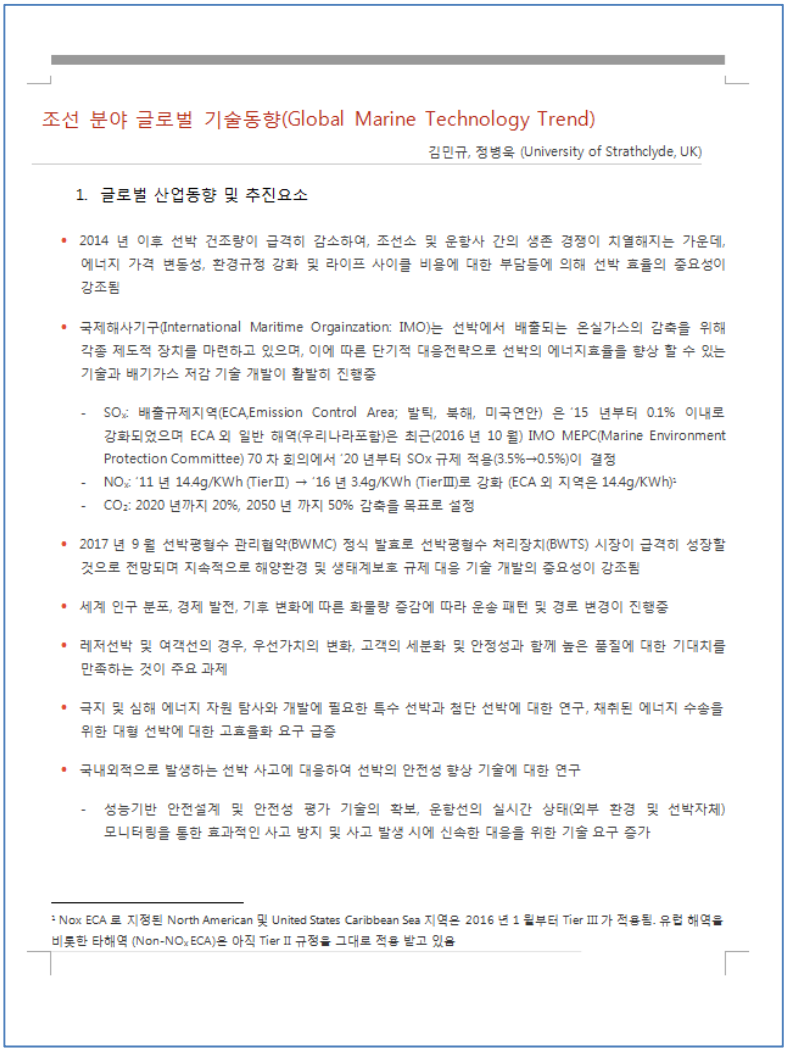
- 국제해사기구(IMO, International Maritime Organization)는 선박연료의 황산화물 (SOx) 함유량, 질소산화물 (NOx) 배출량 규제를 강화하고 있음
  - SOx: 배출규제지역(ECA,Emission Control Area; 발틱, 북해, 미국연안) 은 '15 년부터 0.1% 이내로 강화되었으며 ECA 외 일반 해역(우리나라포함)은 최근(2016 년 10 월) IMO MEPC(Marine Environment Protection Committee) 70 차 회의에서 '20 년부터 SOx 규제 적용(3.5%→0.5%)이 결정
  - NOx: '11 년 14.4g/KWh (TierII) → '16 년 3.4g/KWh (TierIII)로 강화 (ECA 외 지역은 14.4g/KWh)[1]
  - CO_2: 2020 년까지 20%, 2050 년 까지 50% 감축을 목표로 설정
- 연료의 황함유량을 줄이기 위한 다가오는 국제 규제가 연료비용을 증가 시킬 것으로 사료되며, 이는 전세계의 조선/해운 활동에도 상당한 영향을 미칠 것으로 판단
  - IMO 프로그램에 따라 CO_2, NOx 및 SOx 등에 대한 규제가 단계적으로 강화되고 있고 이러한 규제는 노후화된 중고선의 해체를 가속화하고 글로벌 선박 시장구조를 전체적으로 친환경 선박으로 변화시킬 전망
  - 특히, 2013 년에 발효된 탄소배출 규제를 시작으로, 전 세계 조선산업은 그린쉽 및 관련 기자재 엔지니어링 원천기술 확보를 위한 투자를 강화
- 국제 환경 규제를 만족하기 위하여 다양한 배출 저감 방법들의 연구 및 제품 개발이 진행

[1] Nox_ECA 로 지정된 North American 및 United States Caribbean Sea 지역은 2016 년 1 월부터 Tier III 가 적용됨. 유럽 해역을 비롯한 타해역 (Non-Nox_ECA)은 아직 Tier II 규정을 그대로 적용 받고 있음

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Global Marine Technology Trend (Industrial Technology Trends)

- Sponsoring Institution: KEIT(Korea Evaluation Institute of Industrial Technology)
- Period: 03 October 2016 ~ 27 November 2016
- Authors: Dr Mingyu Kim, Mr Byongug Kim (University of Strathclyde, UK & EKMOA)



조선 분야 글로벌 기술동향(Global Marine Technology Trend)

김민규, 정병욱 (University of Strathclyde, UK)

1. 글로벌 산업동향 및 추진요소

- 2014 년 이후 선박 건조량이 급격히 감소하여, 조선소 및 운항사 간의 생존 경쟁이 치열해지는 가운데, 에너지 가격 변동성, 환경규정 강화 및 라이프 사이클 비용에 대한 부담등에 의해 선박 효율의 중요성이 강조됨
- 국제해사기구(International Maritime Orgainzation: IMO)는 선박에서 배출되는 온실가스의 감축을 위해 각종 제도적 장치를 마련하고 있으며, 이에 따른 단기적 대응전략으로 선박의 에너지효율을 향상 할 수 있는 기술과 배기가스 저감 기술 개발이 활발히 진행중
  - SO_x: 배출규제지역(ECA,Emission Control Area; 발틱, 북해, 미국연안) 은 '15 년부터 0.1% 이내로 강화되었으며 ECA 외 일반 해역(우리나라포함)은 최근(2016 년 10 월) IMO MEPC(Marine Environment Protection Committee) 70 차 회의에서 '20 년부터 SOx 규제 적용(3.5%→0.5%)이 결정
  - NO_x: '11 년 14.4g/KWh (TierⅡ) → '16 년 3.4g/KWh (TierⅢ)로 강화 (ECA 외 지역은 14.4g/KWh)[1]
  - CO_2: 2020 년까지 20%, 2050 년 까지 50% 감축을 목표로 설정
- 2017 년 9 월 선박평형수 관리협약(BWMC) 정식 발효로 선박평형수 처리장치(BWTS) 시장이 급격히 성장할 것으로 전망되며 지속적으로 해양환경 및 생태계보호 규제 대응 기술 개발의 중요성이 강조됨
- 세계 인구 분포, 경제 발전, 기후 변화에 따른 화물량 증감에 따라 운송 패턴 및 경로 변경이 진행중
- 레저선박 및 여객선의 경우, 우선가치의 변화, 고객의 세분화 및 안정성과 함께 높은 품질에 대한 기대치를 만족하는 것이 주요 과제
- 극지 및 심해 에너지 자원 탐사와 개발에 필요한 특수 선박과 첨단 선박에 대한 연구, 채취된 에너지 수송을 위한 대형 선박에 대한 고효율화 요구 급증
- 국내외적으로 발생하는 선박 사고에 대응하여 선박의 안전성 향상 기술에 대한 연구
  - 성능기반 안전설계 및 안전성 평가 기술의 확보, 운항선의 실시간 상태(외부 환경 및 선박자체) 모니터링을 통한 효과적인 사고 방지 및 사고 발생 시에 신속한 대응을 위한 기술 요구 증가

[1] Nox ECA 로 지정된 North American 및 United States Caribbean Sea 지역은 2016 년 1 월부터 Tier Ⅲ가 적용됨. 유럽 해역을 비롯한 타해역 (Non-NO_x ECA)은 아직 Tier Ⅱ 규정을 그대로 적용 받고 있음

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UK-Korea Marine and Offshore Collaboration

Date	28 Nov. to 1 Dec. 2016
Venue	Aberdeen, Sheffield, and London
Participants	Europe-Korea Marine and Ocean Engineers Association (EKMOA) Korean Scientists and Engineers Association in the UK (KSEAUK) Hyundai Heavy Industries (HHI) Daewoo Shipbuilding and Marine Engineering (DSME) Samsung Heavy Industries (SHI) Korea Offshore & Shipbuilding Association (KOSHIPA) Department of International Trade, British Embassy Seoul (DIT)
Contents	28 November (Aberdeen) Delegation from Korea visit to marine equipment manufacturers in UK Participant from EKMOA: Dr Gijae Yun 29 November (London) UK-South Korea Offshore Engineering Partnering Event Participant from EKMOA: Dr Dong Nam • Presentations from Korean and UK • 1-2-1 business meetings with the Korean delegation, etc. 30 November (Sheffield) Delegation from Korea visit to marine equipment manufacturers in UK Participant from EKMOA: Dr Dong Nam 1 December (London) Delegation from Korea visit to Lloyd Register • Presentations about marine/offshore market and regulatory compliance • Discussion on marine and offshore industry collaboration between UK and Korea etc. 1 December (London) EKMOA, KOSHIPA, DIT, UK Science and Innovation meetings Participants from EKMOA: Dr Dong Nam, Dr Yongwon Lee

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Photos



UK-South Korea Offshore Engineering Partnering Event



UK-South Korea Offshore Engineering Partnering Event



Equipment Manufacturer Visit

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Equipment Manufacturer Visit



Lloyd's Register Visit



Lloyd's Register Visit

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Lloyd's Register Visit



Lloyd's Register Visit

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Steering Committee

President: Dr Yongwon Lee, Lloyd's Register, UK

Vice President (Projects & Service): Dr Mingyu Kim, University of Strathclyde, UK
Vice President (International): Dr Dong Nam, Lloyd's Register, UK
Vice President (Finance): Dr Mingyu Kim, University of Strathclyde, UK (temporary)

Director of General Affairs: Dr Taeseong Kim, Technical University of Denmark, Denmark
Director of Finance: Mr Byongug Jeong, University of Strathclyde, UK

Representative of UK: Dr Dong Nam, Lloyd's Register, UK (temporary)
Representative of Scandinavia: Mr Baejun Kwon, DNV GL, Norway
Representative of the Continent: Dr Kwangkyun Park, POSCO Europe, Germany

Audit

Auditor: Dr Gijae Yun, Subsea Consultant, UK

Advisory Committee

Advisory Committee Member: Dr Seungdeog Yoo, Microvortex, Germany
Advisory Committee Member: Dr Keunjae Kim, SSPA, Sweden

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