



이 제 명 교수

조선해양공학과
손상역학연구실

jaemlee@pusan.ac.kr
Tel. 051-510-2342

연구분야

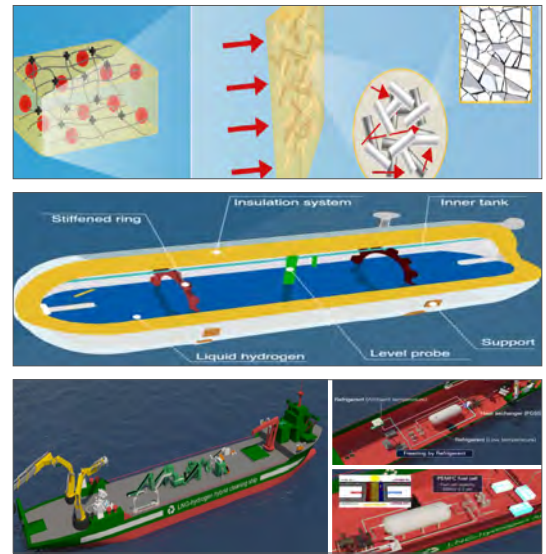
Hydrogen ship(H2 fuel cell ship and LH2 carrier)
High-efficiency insulation materials for liquefied gas storage systems(LH2 and LNG)
Material and structural assessment under extreme conditions(cryogenic, hydrogen, etc.)
Continuum damage mechanics based nonlinear finite element analysis

수상

우수논문상, 한국복합재료학회 2019, 2018, 2015 / 우수논문상, 대한조선학회 2018
Best Paper Award, International Conference on Frontiers of Composite Materials 2018
우수논문상, 한국마린엔지니어링학회 2017

대표연구

- High Efficiency Insulation Materials
 - Advanced insulation material development
 - Synthesis technology for polymer insulation
 - Mechanical and thermal performance evaluation
- Liquefied Gas Storage System
 - Cryogenic material performance test(-253 °C)
 - Structural intensity assessment under cryogenic temperature
 - BOG prediction of mock-up(test and simulation)
 - Advanced vacuum insulation system for liquid hydrogen
- Hydrogen Ship
 - Anti-hydrogen embrittlement technology
 - Hydrogen fuel cell application technology
 - Evaluation of electric propulsion system
 - Demonstration of hydrogen fuel cell ship



주요 연구실적

- Analysis of glass fiber reinforced composites in membrane-type LNG cargo containment system for structural safety using experimentally defined mechanical properties, Composite Structures, 276, 114532(2021)
- Effects of ultrasonic dispersion on nanoparticle based polyurethane foam reinforcement, Polymer Testing, 99, 107210(2021)
- Mechanical performance degradation of glass fiber-reinforced polyurethane foam subjected to repetitive low-energy impact, International Journal of Mechanical Sciences, 194, 106188(2020)
- Evaluation of the pressure-resisting capability of membrane type corrugated sheet under hydrodynamic load, Thin-Walled Structures, 162, 107388(2020)
- Effect of PTFE coating on enhancing hydrogen embrittlement resistance of stainless steel 304 for liquefied hydrogen storage system application, International Journal of Hydrogen Energy, 45, 9149-9161(2020)

주요 연구과제

- 친환경 수소연료선박 R&D 플랫폼 구축, 산업통상자원부, 2019~2023년, 420억원(액체수소환경 소재부품 성능평가, 선박용 연료전지-ESS시스템, MW급 전기추진시스템)
- 해양 부유쓰레기 수거·처리용 친환경(LNG-수소) 선박 개발 및 실증 사업, 산업통상자원부 & 해양수산부, 2022~2026년, 450억원(LNG-수소 hybrid 추진 실증선 건조, 해양쓰레기 처리 모듈)
- 수소선박 안전기준개발(해양수산부), 시장경쟁력 확보를 위한 BOR 0.07% 이하의 LNG 선박용 화물창 개발(산업통상자원부), 극저온 액화가스 누출손상 예지보전기술개발(과학기술정보통신부) 등

학회 활동

- Deputy Editor, Ocean Engineering(SCI Journal)
 - Engineering, Marine 분야 Top1 저널(IF: 3.795)
- Associate Editor, Metals(SCI Journal)

산학 협력 활동

- 수소경제활성화로드맵 전문위원, 국무총리실 주관
- 전주기 수소기술개발 전문위원, 과기부 주관(범부처)
- 조선항공우주기술 국가표준심의위원, 산업통상자원부