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연구분야

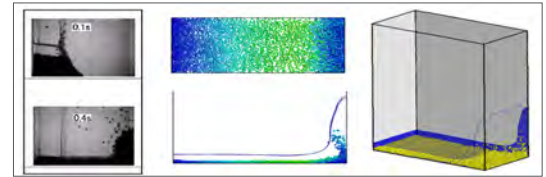
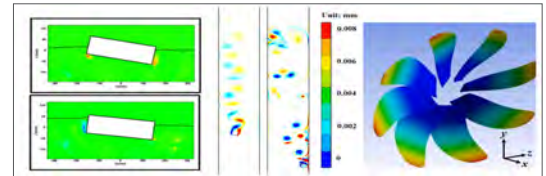
Heat and flow control based on biomimetic
Fluid-Structure Interaction, FSI / Multi-phase flow

수상

조선해양플랜트핵심연구센터, 봉사상, 2018
한국에너지학회 춘계학술발표대회, 우수논문상, 2017
Bk21플러스 우수연구인력, 교육부장관표창, 2016
부산미래과학자상, 최우수상, 2014

대표연구

- Heat and Flow control based on biomimetic
 - Helically twisted elliptic cylinder
 - Harbor seal's vibrissa shaped cylinder
 - Wavy cylinder designed from bumps of Humpback whale's flipper
- Fluid-Structure Interaction, FSI
 - Wave-Structure
 - Gravity current-Structure
 - Composite propeller
- Multi-phase flow
 - Dam break(Liquid-Gas-Particle)
 - Free-surface/body interaction
 - Sloshing



주요 연구실적

- Effect of the geometric features of the harbor seal vibrissa based biomimetic cylinder on the forced convection heat transfer, International Journal of Heat and Mass Transfer, Vol. 159, pp. 120086, June, 2020
- Double wavy geometric disturbance to the bluff body flow at a subcritical Reynolds number, Ocean Engineering, Vol. 195, pp. 106713, November, 2019
- CFD-DEM based numerical simulation of liquid-gas-particle mixture flow in dam break, Communications in Nonlinear Science and Numerical Simulation, Vol. 59, pp. 105-121, June 2018
- Effects of a duct before a propeller on propulsion performance, Ocean Engineering, Vol. 136, pp. 54-66, May 2017
- Large eddy simulation of flow over a twisted cylinder at a subcritical Reynolds number, Journal of Fluid Mechanics, Vol. 759, pp. 579-611, October 2014

주요 연구과제

- 고로 원주 방향 저선 및 슬래그 레벨 편차 예측 모델 개발, POSCO, 2021~Present, 8천 8백만원(다상 유동, 입자 거동, CFD-DEM)
- 딥러닝 기반 생체모방유동제어 지능화 기술 개발 연구, 한국연구재단, 2019~Present, 4억 7천 5백만원(딥러닝, 생체모방, 유동 제어)
- 조선해양플랜트글로벌핵심연구센터, 한국연구재단, 2011~2021, 8억 5천 8백만원(유동 제어, 생체모방, 시뮬레이션)

학회 활동

- Editorial board, Energies(2021.05~현재)
- Editorial board, International Journal of Hydro mechatronics (2017.11~현재)
- 대한기계학회 논문집 C 열공학부분 편집위원 (2015.01.01~2015.12.31)

산학 협력 활동

- 한국과학기술정보연구원 SMB 슈퍼컴퓨팅 지원 전문가 (2008.08~현재)
- 한국과학기술정보연구원 산업체 슈퍼컴퓨팅 위원(2010.09~현재)