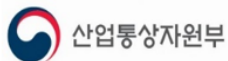


Home Appliance



- Visualization and noise reduction of a refrigerant two-phase flow of an air-conditioner
- Design optimization of a two-phase ejector using CFD
- Visualization of flow inside carpet induced by vacuum cleaner
- Development of program to predict drum washing machine's performance
- Cleaning performance enhancement for a dish washer

Information Technology

- Lubricant leakage reduction of fluid dynamic bearing (FDB) of HDD
- Prediction of turbulence flow field using deep learning
- Development of theoretical model for prediction of coating stability for a high-speed slot coating

Transportation (car, airplane, etc.)

- Coolant leakage reduction in a water pump
- Optimal design of a solenoid valve for cavitation minimization
- Optimization of engine coolant pre-heater and heat exchanger

Bio / Medical Application

- Desktop MRI system for point-of-care (POC) detection
- Visualization of cardiovascular flow using MRI
- Fabrication of red blood cell-like microparticles

Lab-on-a-chip

- Micro-droplet control using thermocapillary effects / magnetic force
- On-chip poly-diacetylene (PDA) synthesis and property Control
- Carbon nano tube (CNT) fabrication
- Paper-based microfluidics
- Non-equilibrium electrokinetic mixer
- Microchip isoelectric focusing (Microchip IEF)
- Color-tunable photonic capsules
- Soft bio-computing using interaction of *Euglena gracilis*

Energy / Defense

- Hydrogen behavior and distribution in large-scale nuclear power plant by particle image velocimetry (PIV)
- Torpedo skin-friction reduction by using a superhydrophobic surface

Others

- Pressure sensor development for a portable water purifier
- Development of calibration method for ultrasonic flowmeter to overcome the flow disturbance
- Ultraviolet cleaning ball design