



Department of Robotics, Graduate School of Engineering Murata • Kawamata • Hamada /Nomura • Matsubayashi Lab.

Feel free to ask what you want to hear or know online! Visit our website→
<http://www.molbot.mech.tohoku.ac.jp>

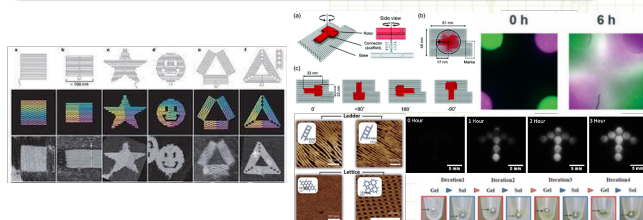


Molecular Robotics

"Molecular robotics" is a new field of study that was born at the boundary of various fields such as machinery, biology, chemistry and information. Advances in molecular biology have made it possible to reveal the details of biological systems as molecular machines. By applying this knowledge to engineering, it is becoming possible to produce complex molecular devices using biomolecules as materials. "Molecular robotics" is to study the methodology to integrate various molecular devices and construct "systems" of more sophisticated molecules. We are studying a new generation of technologies that can lead the design theory of molecular machines from the device level to the system level and bridge the nanometer world (bottom-up molecular design) and the micrometre world (top-down mechanical technology = MEMS).

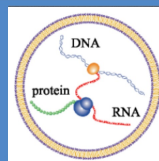
DNA Nanoengineering

DNA nanotechnology develops artificial DNA to create molecular devices/systems that self-assemble into the desired structure.

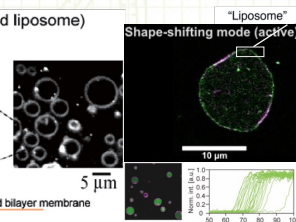
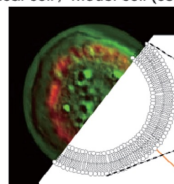


Artificial Cells

Construction of an artificial cell-model is reasonable approaches for understanding living cells, and for creating "living-like" material.



Real cell / Model cell (cell-sized liposome)



BIOMOD

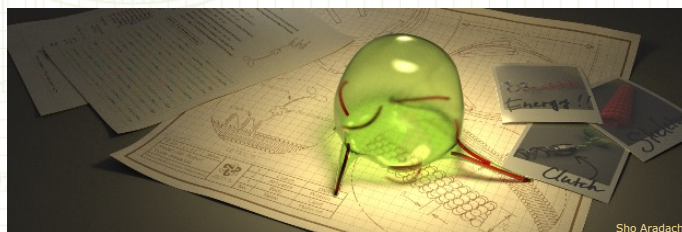
BIOMOD is an annual biomolecular design competition for students. The project will be evaluated at 3 points, the wiki page, the youtube video, and the presentation. Team Sendai achieved excellent places!

2011	Gold award	2012	1st place
2013	3rd place	2014	3rd place
2015	1st place	2016	2nd place
2017	2nd place	2018	1st place
2019	3rd place		

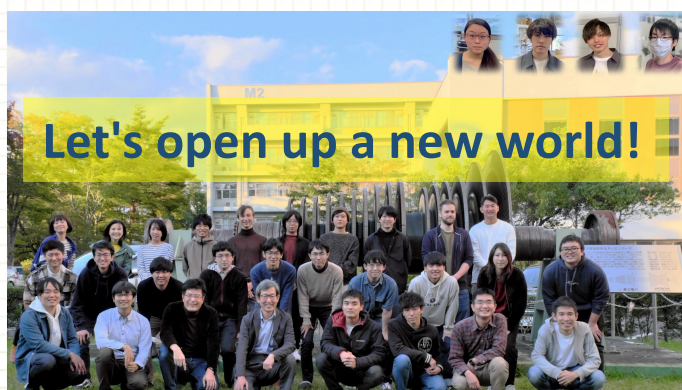
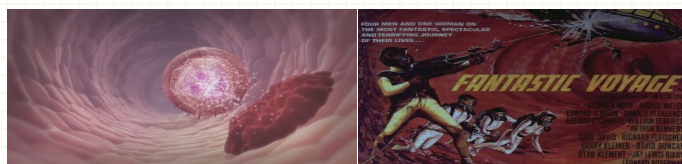
In 2020-2022, due to pandemic, we joined the domestic competition in an inter-university mixed team!



This year, the International Tournament is back!



Sho Aradachi



Let's open up a new world!