We deal with Flow in all the fields of engineering, science, and medical science.

Director Toshiyuki Hayase

The Institute of Fluid Science, Tohoku University is a state of the art research center of fluid science.

Past

It all started with cavitation research

The origin of the Institute of Fluid Science was the Institute of High Speed Mechanics, established in 1943. The original purpose of the Institute was to research cavitation occurring on an object in a high speed flow. It is well known that the institute significantly contributed to the development of the first Japanese jet engine.

After the World War II, the Institute changed the research target for industrial applications. The Institute supported the development of sea ship propellers, power plant turbines, airplane engines, and industrial pumps.

In the 1970s, the research areas of the Institute expanded and diversified from flows in ordinary conditions to those in extreme conditions such as high temperature, high pressure, and high speed. They include micro flow dealing with molecules, complex flow accompanying chemical reactions, and blood flow through blood vessels. Accompanying this expansion, the Institute of High Speed Mechanics was renamed the Institute of Fluid Science (IFS) in 1989.

Present

State of the art computational and experimental researches.

Today, the Institute of Fluid Science is the world's advanced fluid research center with 25 research laboratories under the four research divisions and Transdisciplinary Fluid Integration Research Center. The institute had quickly recovered from the damage of Tohoku earthquake in May, 2011.

Researches are conducted using world-leading experimental equipments such as a low-turbulence wind tunnel and shock wave research facilities. The Institute also has a supercomputer system for computational researches. The Advanced Fluid Information Research Center is carrying out cutting edge researches such as large scale flow simulations, real flow analysis by fusion of numerical simulation and experimental measurement, and advanced visualization. We actively promote collaborative researches with researchers from all over the world.

Future

Solving important social problems by research achievements

IFS introduced the concept of *research clusters*. Every researcher in IFS arbitrarily belongs to four research clusters: Aerospace, Energy, Life Science, and Nano-Micro clusters. The goal of this endeavor is to enhance researchers' interactive activities focusing on important research areas to the society.

As the world center of fluid science community, we are conducting activities utilizing its worldwide network. IFS has been running the Global COE program since 2008, and was appointed as the Joint Usage/Research Center in the field of fluid science by the Japanese government in 2010.

Japan is facing serious problems to recover from the earthquake and the world is also facing problems in environment, resources, safety, and health. In order to solve these problems, we continuously make cutting edge research activities and research-based education in the field of fluid science.