

Science of joining :

Experience joining of metals and the mechanical testing.

Various metal materials are widely used in practical applications around us. **Joining technology** is essential to bring out the full potential of these materials in the products. In this training, we will investigate **how the materials are joined**, and **how the strength of the joint changes** through joining process such as arc welding, ultrasonic welding, and friction stir welding. Let's have discussions based on the experimental results to make a stronger joint than that before joining.

Welding and Joining

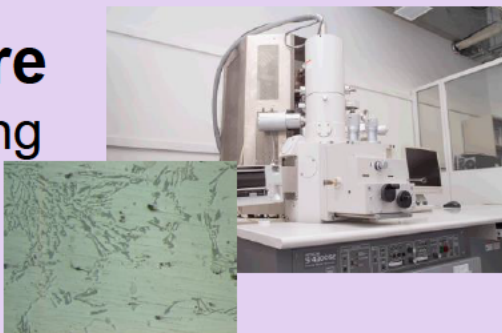
Ultrasonic Welding

Friction Stir Welding



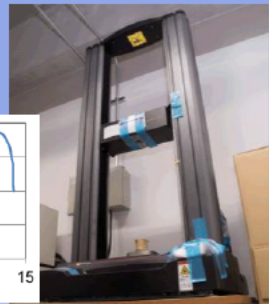
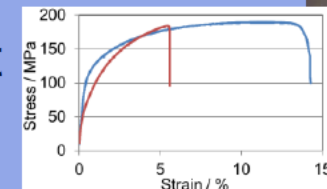
Microstructure

Cutting / Polishing
Observation by
microscope



Mechanical property

Tensile test
Hardness test



Instructor: Prof. Yutaka Sato,
○Assistant Prof. Shun Tokita (TEL:022-795-7353, Email: shun.tokita.c4@tohoku.ac.jp)