



# YANAGIMOTO LAB.

[Simultaneous Generation of Geometry and Microstructure]

Department of Mechanical and Biofunctional Systems

<http://www.iis.u-tokyo.ac.jp/~yanlab/>

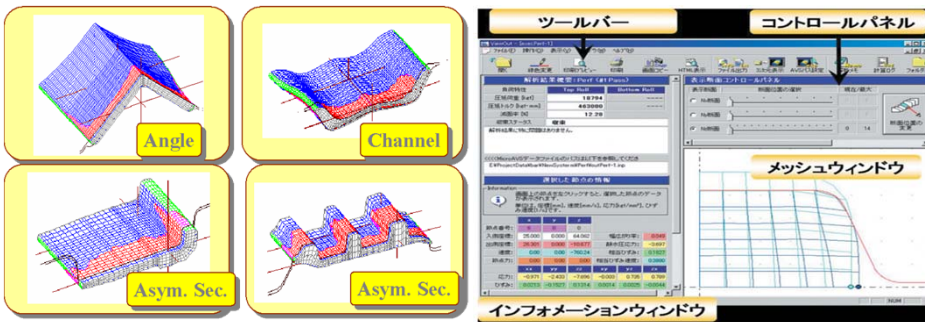
**Hyper-functional Forming**

Graduate School of Engineering/ Mechanical Engineering

## Chair of metal forming and hyper-functional forming

Hyper-functional forming, which locates at interdisciplinary field between production technology and materials technology, is aimed at generating geometry and mechanical properties of formed product. We are carrying out investigations into the basic field of hyper-functional forming as theoretical analysis of metal forming, development of new forming systems and micro-structure control of metallic materials by forming.

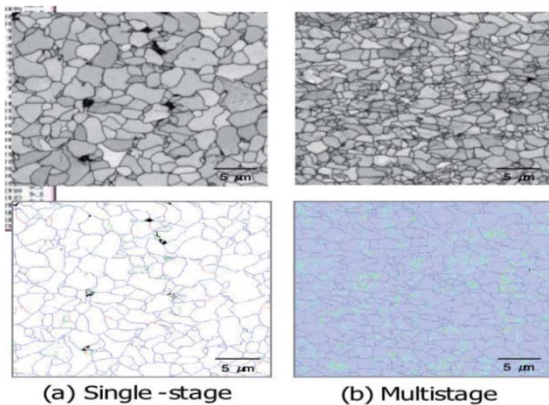
- ◆ CAE system for forming
- ◆ High-speed compression test and digital forming platform
- ◆ Semi-solid forming and microstructure control
- ◆ Warm and hot forming of steel sheets for ultra lightweight construction
- ◆ Forming of high alloys such as Titanium alloys and Magnesium alloys



CAE system for rolling

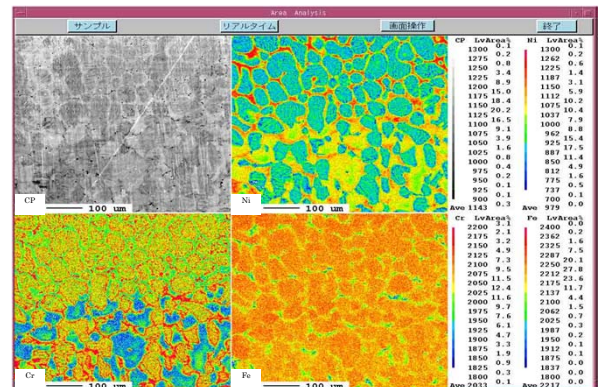
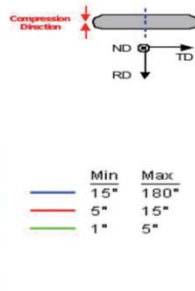


High-speed compression testing machines



(a) Single-stage

(b) Multistage



Ferrite grains using image quality maps (Upper) and grain misorientation maps (lower) obtained by EBSP analysis

Semi-solid forming of type 304 stainless steel