

YANAGIMOTO LAB.

[Simultaneous Generation of Geometry and Microstructure]

Department of Mechanical and Biofunctional Systems

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

Chair for Hyper-functional Forming

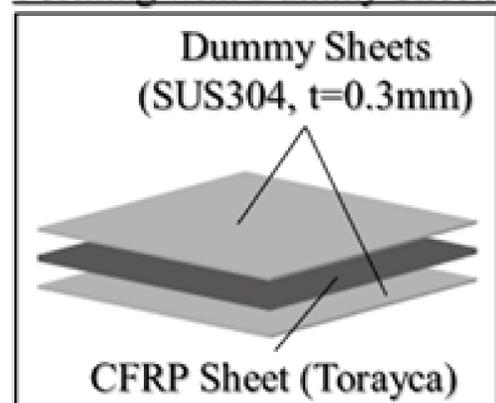
Mechanical
engineering
department

Simultaneous Generations of Geometry and Microstructure

Hyper-functional forming technology aims at both the creation of forms and functions simultaneously. The technology is on a field of interface between manufacturing and material science. In our laboratory, those research below are investigated theoretical analysis of deformation, development of press-forming system, and control of microstructure.

- ◆ Computer-aided engineering (CAE) of plastic deformation
- ◆ Controlling technology of microstructure using plastic deformation and partial melting
- ◆ Forming system with hyper-functional forming
- ◆ Suitable structure of Carbon-fiber-reinforced plastic sheet (CFRP) with both high formability and light weight properties

Forming with Dummy Sheets



Parameters

Punch Speed: 1 mm/s
Temperature: RT, 100°C

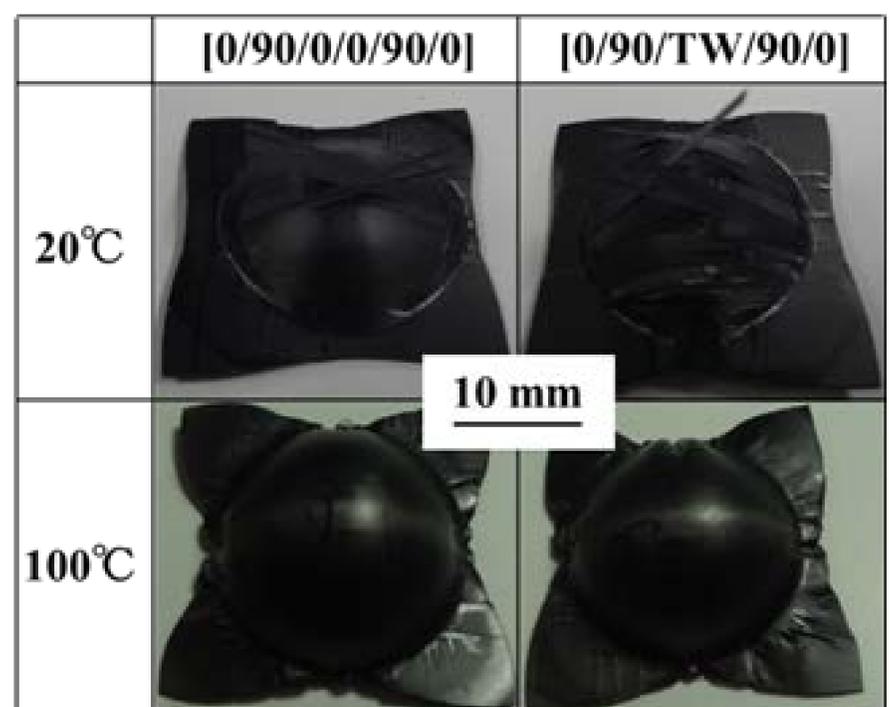
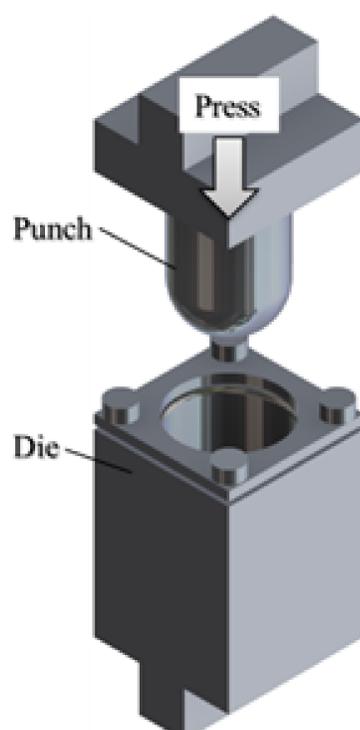


Fig. 1 Experimental setup of bulging test.

Fig. 2 Bulging test of the thermosetting CFRP sheet.