CMI

TSUCHIYA LAB.

[Machining/Assembly technologies for high-efficiency manufacturing]

Department of Mechanical and Biofunctional Systems

Applied Micro Manufacturing

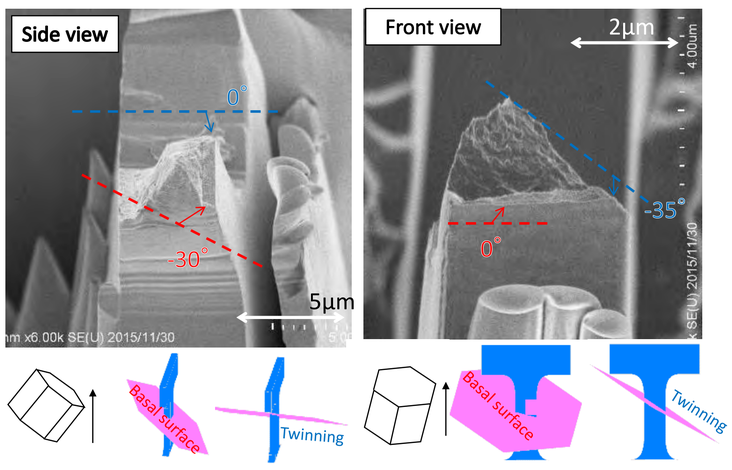
Department of Mechanical Engineering

http://cossack.iis.u-tokyo.ac.jp/top-j.html

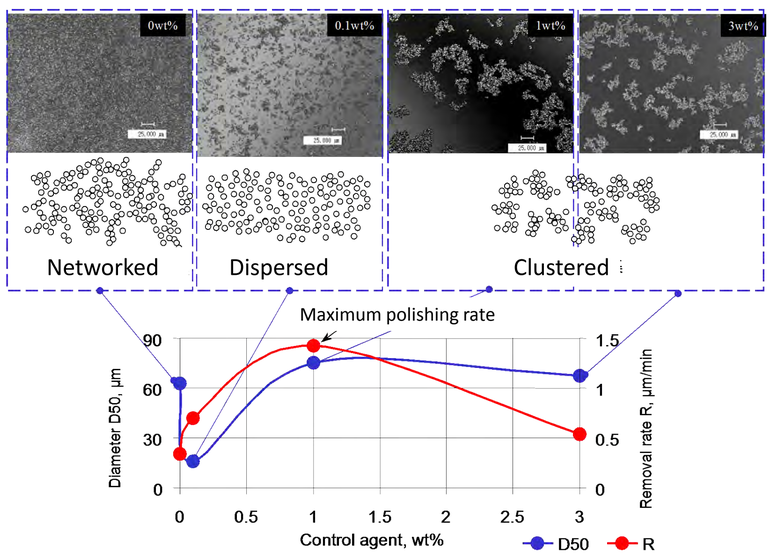
Machining/Assembly Technologies for High-efficiency Manufacturing

Our laboratory develops machining technology that creates a shape, and assembling/ implementation/inspection of the components technology for from micro-scale to macro-scale devices.

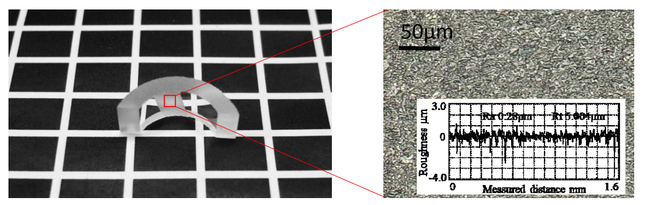
- ◆Advancement of aircraft manufacturing technology
- ◆Optimization of the Sharpening Method for Improvement of Cutting Performance
- ◆Development on fixed abrasive tool with continuous pore
- ◆Study on characteristics of polishing slurry with microscopic observations
- ◆Micro-scale fatigue test system with real-time observation
- ◆3D mixing of powder using dividing channel
- ◆Nano structure reproduction by heat flux control in injection molding
- ◆Micro/Nano structures on the roll mold surface by composite plating



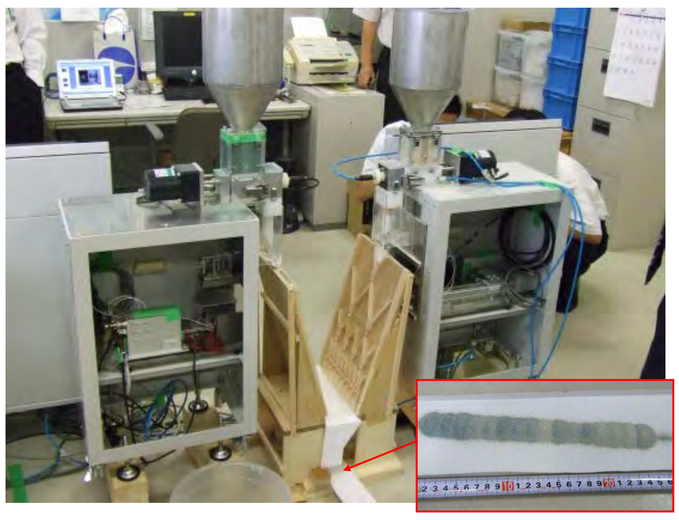
Fatigue test under real-time observation.



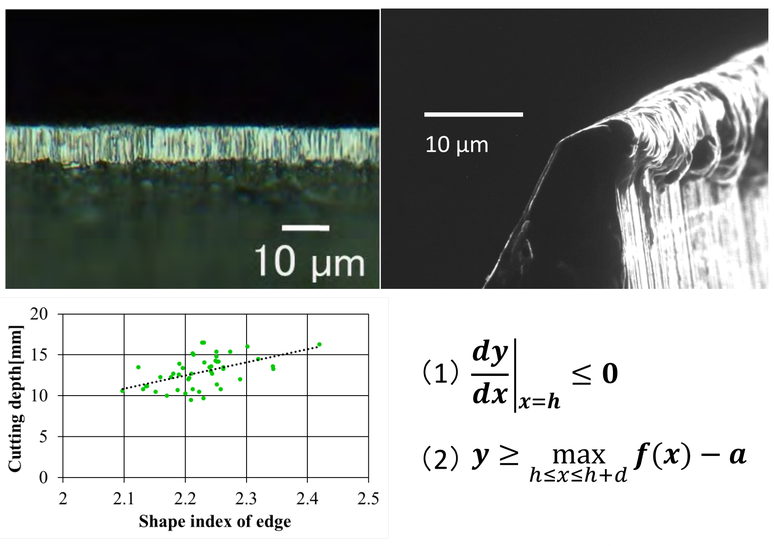
Relationship between polishing rate and dispersibility of abrasive grains in polishing slurry.



Fixed micro abrasive tool with super long life.



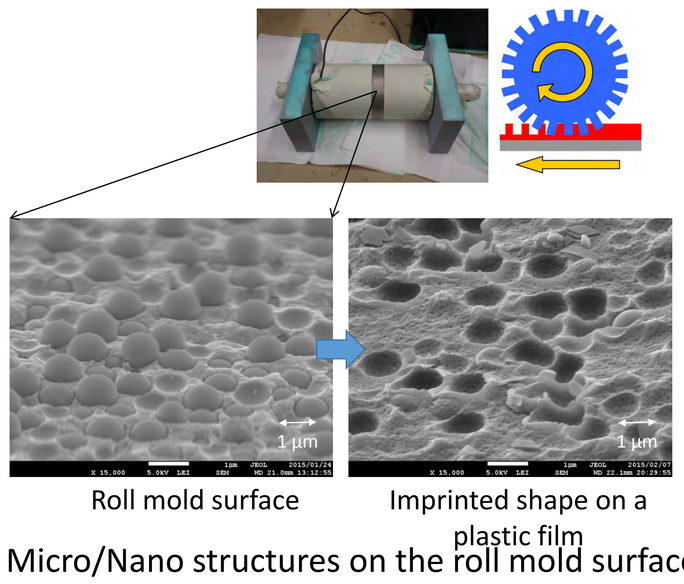
3D mixing system of powder using dividing channel, and mixture of Al_2O_3 and SiC.



$$(1)\ \left.\frac{dy}{dx}\right|_{x=h} \leq 0$$

$$(2)\ y \geq \max_{h \leq x \leq h+d} f(x) - a$$

Relationship between the edge shape of a cutting blade and its cutting performance.



Roll mold surface

Imprinted shape on a plastic film

Micro/Nano structures on the roll mold surface by composite plating.