

## Innovation in ultra-precision machining through “Plasma nanoManufacturing Process”

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### **Abstract**

A new ultra-precision machining process called "Plasma nanoManufacturing Process" is being developed by our research group. This process consists of numerically controlled plasma CVM, plasma-assisted polishing, and heat-assisted plasma surface modification. Plasma CVM can create nanometer-accurate shapes by numerically controlled scanning of locally generated plasma, and plasma-assisted polishing provides sub-nanometer-order surface roughness for wide-gap semiconductor substrates without damage. Surface modification by heat-assisted plasma enables strong adhesion between chemically inert fluororesin and other materials. In my presentation, I will introduce the outline and application results of these novel plasma processes.