Carbon Black with diameters of a few tens of nm were formed through the deposition of Fe seeding layer. Fabrication of Amorphous Carbon Phase with Diamond Properties. Carbyne is a high pressure phase of carbon. Glassy Carbon is a mixture of sp2 and sp3 bonding. Soot is a mixture of sp and sp2 bonding. SnO2 is a glassy phase.

Diamond & DLC

Hard Coating Films of Carbon

Both diamond vapor phase growth and DLC film fabrication started research from the 1960’s. Diamond film is a next generation material that is expected to be practical use as a superhard film or semiconductor film. DLC film has already been practical use as a hard film or a barrier coating.

Wear-proof Coating of DLC on All alloy

Improvement of Adhesion Strength & Tribological Behavior

When surface hardness of Al is improved by DLC coating, a lightweight mechanical sliding part is realized, although there is a problem of low adhesion. We have developed a novel interfacial control technique called Substrate Sputtering Re-deposition Technique (SSRD) and achieved to improve the adhesion strength.

Fabrication of Amorphous Carbon

Diamond Growth from Vapor Phase

Surface Reaction during Diamond Vapor Growth

Mechanism of Diamond Growth

Diamond surface interacts with various vapor phase molecules during vapor phase growth. The mechanism of diamond growth from the vapor phase will be established based on these basic chemical and physical analyses in ultra high vacuum.

Schematic diagram of the surface analysis chamber.

Fabrication of Carbon Allotropes Films

[Carbon Allotropes Films]

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