Abstract for EJC-PISE in Riga

Preferred type of presentation: poster

Title: PECVD-technologies for Silicon- and Carbon based protective coatings

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Carbon- and Silicon based protective and wear resistance coatings are in the focus of current technological efforts. The PECVD (Plasma Enhanced Chemical Vapor Deposition) technology promises very efficient deposition at low costs. However, the transition from technologies on the laboratory scale to high-throughput and large-area industrial standard can be very challenging.
Roth & Rau has developed technologies for deposition of Carbon based coatings (a-C:H, a-C:H:Me, a-C) and Silicon based coatings (SiN, SiC, SiO). The systems are capable of processing substrates from small, wafer based sizes up to full, inline processing with high throuput.
The MicroSys-series, developed for research and limited lot production, coveres substrate sizes up to 12"-wafers. ICP- or ECR-plasma-sources provide a high density plasma, an additional substrate bias supports the deposition process. A typical application is the deposition of wear resistant and anti reflective DLC-coatings.
The AK-series and the SiNA-systems are based on microwave-powered, linear plasma sources for large area deposition up to 1,5m width. Layers of SiN and SiC are used for mechanical applications and for antireflection and/or passivation of solar cells and OLED-devices. The systems can also be optimized for deposition of Carbon-based films (a-C:H, Nano Crystalline Diamond) for mechanical protection.
The HBS-system combines an ECR-plasma source with magnetron sputtering technology and arc evaporation sources for multilayer deposition. Because of a multi-rotation substrate holder 3D-samples can be coated from all sides. Deposition of DLC for wear resistance and dry lubrication are typical applications for the HBS-system.
Generally, Roth & Rau offeres various PECVD-based, industrial-standard deposition technologies in the field of protective coatings.