Abstract Submitted
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Description of the plasma immersion ion implantation and deposition system in Saudi Arabia AHMED HALA — A Plasma Immersion Ion Implantation and Deposition (PIII&D) system is installed at KACST in Saudi Arabia. The device objective is the treatment of objects to enhance their tribological properties such as reducing wear and corrosion. The core technology of the system is a 100 kV pulser for PIII processes and a 7 KV pulser for Diamond Like Coating (DLC) processes. The system consists of a 2 m^3 vacuum chamber covered with a 0.25 inch lead shroud to shield against X-ray. The vacuum chamber is fitted with vacuum gauges. A base pressure of 10^{-6} torr was attained using a cryogenic pump. A water cooled table is installed inside the chamber. The table is connected to the two pulsers. The samples are placed on the table for processing. The plasma is produced using a capacitive rf source. The source power is delivered by two race track shaped antennas. The antennas are placed parallel to the processing tables so as to provided a uniform plasma for the treated samples. The process is fully automated and PC controlled. The system is used to treat a variety of metal objects to enhance their wear and corrosion properties.

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