

Abstract Submitted
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New Method for Homogeneous Plasma Production at Gas Pressure 0.005 – 5 Pa Used for Substrate Etching, Nitriding, Ion Implantation and Coating Deposition ALEXANDER METEL, SERGEI GRIGORIEV, YURIY MELNIK, VLADIMIR PRUDNIKOV, Moscow State University of Technology “Stankin” — DC glow discharge with electrostatic confinement of electrons is used for homogeneous plasma production inside working vacuum chamber of technological system “Bulat-6” at argon or nitrogen pressure p ranging from 0.005 Pa to 5 Pa. Plasma nonuniformity at $p < 0.05$ Pa does not exceed $\sim 10\%$ and rises to $\sim 20\%$ at $p = 0.5 - 5$ Pa. The argon plasma enables conductive substrates etching and targets sputtering with energetic ions as well as heating and melting metals and dielectrics with energetic electrons. The nitrogen plasma enables cost-effective ion implantation and nitriding of conductive substrates, which are negatively biased using a simple DC high-voltage power supply.

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