

Abstract Submitted
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The Pulsed Cylindrical Magnetron for Deposition SERGEY KORENEV, Lynntech, Inc. — The magnetron sputtering deposition of films and coatings broadly uses in microelectronics, material science, environmental applications and etc. The rate of target evaporation and time for deposition of films and coatings depends on magnetic field. These parameters link with efficiency of gas molecules ionization by electrons. The cylindrical magnetrons use for deposition of films and coatings on inside of pipes for different protective films and coatings in oil, chemical, environmental applications. The classical forming of magnetic field by permanent magnets or coils for big and long cylindrical magnetrons is complicated. The new concept of pulsed cylindrical magnetron for high rate deposition of films and coating for big and long pipes is presented in this paper. The proposed cylindrical magnetron has azimuthally pulsed high magnetic field, which allows forming the high ionized plasma and receiving high rate of evaporation material of target (central electrode). The structure of proposed pulsed cylindrical magnetron sputtering system is given. The main requirements to deposition system are presented. The preliminary data for forming of plasma and deposition of Ta films and coatings on the metal pipes are discussed. The comparison of classical and proposed cylindrical magnetrons is given. The analysis of potential applications is considered.

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