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The Optimization of Magnetron System Operating Characteristics by Varying Additional Transverse Anode Magnetic Field A. BIZYUKOV, O. GIRKA, K. SEREDA, V.N. Karazin Kharkiv National University, V. SLEPTSOV, Moscow State Aviation Technological University (MATI), A. CHUNADRA, V.N. Karazin Kharkiv National University — In current paper the control of planar magnetron sputtering system operating modes by additional anode magnetic field was investigated. The additional anode magnetic field was created by the permanent magnets and magnetic circuits system out of conventional magnetron-sputtering system. The influence of magnetic field configuration alteration on discharge characteristics was investigated both theoretically and experimentally. It was shown that additional anode magnetic field substantially affects to planar magnetron-sputtering system balancing and allows adjusting the electron fluxes intensity to the operating surface. It was experimentally shown that the magnetic field intensity increasing stabilizes the low-current discharge. The magnetic field intensity increasing prevents the discharge extinction by the ignition of semi-self-maintained magnetron-type discharge in magnetic arc upon the sputtering target. The transverse anode magnetic field provides the electrons drift in the same direction as in cathode arc magnetic field. The additional anode magnetic field creation by the outer magnets and magnetic circuits application allows providing any required magnetron sputtering system operating conditions without additional power supplies and basic construction conventional equipment engineering change.

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