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Properties of Nanostructured MgB_2 Films Deposited by Magnetron Sputtering

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Abstract : The paper presents the results of studying the structure, phase composition, relief, and superconducting characteristics of oxygen-containing thin films of magnesium diboride (MgB_2) deposited on a dielectric substrate by magnetron sputtering of diboride-magnesium targets. The possibility of forming films of varying degrees of crystalline perfection and phase composition in the process of precipitation and annealing is shown, depending on the conditions of deposition and annealing. In the films, it is possible to realize various combinations of the Abrikosov vortex pinning centers (in the places of fluctuations of the critical temperature of the superconducting transition (T

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