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**Thermal treatment influence on magnetoresistive properties of the  $\text{MgF}_2$  - Co and  $\text{MgF}_2$  - Permalloy films prepared by thermoelectron sustained vacuum discharge** C.P. LUNGU, I. MUSTATA, A. ANGHEL, A.M. LUNGU, O. POMPILIAN, C. POROSNICU, C. TICOS, National Institute for Laser, Plasma and Radiation Physics, V. KUNCSEK, G. SCHINTEIE, D. PREDOI, National Institute for Material Physics — A thermoelectron sustained vacuum discharge (TSVD) method was found to be suitable for preparation of films with different relative content of Co in the  $\text{MgF}_2$  insulating matrix. Co- $\text{MgF}_2$  and Permalloy- $\text{MgF}_2$  granular films presenting TMR effects were prepared by the simultaneous ignition of plasmas in Co and  $\text{MgF}_2$  vapors, respectively. The relative concentrations of the two materials used for deposition depend on the distance between the substrate and the anodes. Morphological, structural and magnetic behaviors were analyzed in as prepared and annealed samples. The influence of the Co content on the magnetic and optical properties of the prepared films was analyzed, in correlation with tunneling magneto-resistance and Kerr effects, respectively. The tunneling magneto-resistance and Kerr effect were found maximal for 20-30% Co content.

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