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Characteristic of sputtered Co75Ag25 film on various under-layer and polyimide substrate

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The Co75Ag25 films were deposited on Co, Ni, Cr and Al under-layers and polyimide substrate by RF-sputtering. All of films exhibited soft perpendicular anisotropy with HCP-Co (201), (220) and FCC-Ag (111), (200) structures. The Co75Ag25 film on Co under-layer showed regular grain distribution and maximum grain size of about 32.2 nm whereas the film on Ni under-layer showed minimum grain size and surface roughness of about 9.8 and 1.3 nm, respectively. The film deposited on Cr under-layer showed maximum perpendicular coercivity and highest squareness ratio about 181 G and 0.112, respectively while the film on Co under-layer showed maximum saturation and remanent magnetization in both of parallel and perpendicular measurement. All results implied that magnetic properties and surface roughness and morphology of sputtered Co75Ag25 film are dependent on under-layer material.

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