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Dynamic Spin Valve SEZEN DEMIRTAS, University of Texas at Dallas, ALI KOYMEN, University of Texas at Arlington, MYRON SALAMON, University of Texas at Dallas — In this study we investigate a dynamic extension of well known classic spin valves. Ultra thin films were dc sputtered in a UHV chamber and their dynamic responses were measured by ferromagnetic resonance (FMR). Two Co layers, separated by a nonmagnetic Ag layer–thick enough to suppress exchange coupling–were deposited, with one of them coupled to a Gd underlayer, forming a Co(1)/Ag/Co(2)/Gd multilayer. At room temperature both Co(1) and Co(2) FMR's are observed for the external magnetic field in the plane of the film. The field for resonance of Co(2) is reduced significantly relative to Co(1), with the paramagnetic moment of the Gd apparently added to the Co magnetization, and the linewidth is broader. Spin pumping effects are minimal since Co(1) and Co(2) do not resonate at the same field.. The Co(2) FMR disappears at the $T_C$of Gd leaving the linewidth of the Co(1) FMR weakly temperature dependent down to the compensation temperature of the Co(2)/Gd bilayer. Below that point, the two Co layers in this dynamic spin valve device are in antiparallel alignment, leading to strong broadening of the Co(1) FMR with decreasing temperature.

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