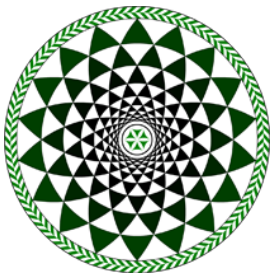

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Inducing exchange bias in Co/Au multilayers by oxygen ion implantation

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Exchange bias occurs at the interface between ferromagnetic (FM) and antiferromagnetic (AFM) materials and manifests itself by shift of the hystheresis loop in applied magnetic field axis, among other things. A method to obtain AFM CoO clusters inside the FM Co material can be oxygen ion beam implantation. The accurate selection of implantation process parameters, with special emphasis on oxygen depth profiles, allows to tailor the magnetic switching mechanism leading to the stepwise reversal process. A series of three Si(100)/Au/$[Co/Au]_n$ multilayers was implanted using 150 keV O ions with different doses.
Energy and doses were adjusted on the basis of Monte Carlo simulations, using SRIM/TRIM package. Magnetic properties such as loop shift, coercivity, and magnetization components of
the implanted multilayers are reported.

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