

Abstract Submitted  
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**An Effective Action approach to inhomogeneous superconductors: Application to F/S/F spin valves** ADNAN REBEI, Seagate Technology — The interplay between magnetism and superconductivity can be studied in simple systems such as ferromagnetic-superconductor-ferromagnetic tri-layers. Many recent experiments [1] measured a critical temperature dependence of the superconductor as a function of the relative orientations of the surrounding ferromagnetic layers. This layered system gives rise to an in-homogenous gap equation for the superconductor due to the polarization at the ferromagnetic-superconductor interfaces irrespective of the orientation of the magnetization in-plane or out-of-plane. Real space formulations are therefore better suited to study this kind of systems. We show that an Effective Action formulation similar to the one proposed by Weinberg [2] is very advantageous in this respect as was shown in normal-ferromagnetic-normal systems in [3].

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