



# 489th ASRC Seminar



Date: 13:30 - 15:00, 29th October

Location: Meeting room 302, ASRC Building

Speaker: Prof. Stewart E. Barnes  
(University of Miami, USA)

Title: GMR and the Nambu-Goldstone theorem

For a ferromagnet, in the absence of a symmetry breaking field, such as an applied or an anisotropy field, the Nambu-Goldstone boson not only restores the rotational invariance of the magnetisation but also that of the conductivity tensor. When there exists small to moderate symmetry breaking fields, it is the Barnes-Maekawa spin-motive force produced by these fields which leads to the experimentally observed “giant-magneto-resistance” (GMR) effect. This let's say “far fetched conjecture” is illustrated by experimental data found in the literature. If true it has wide ranging implications for, e.g., STT-MRAM and many other spintronics technologies



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