Abstract Submitted
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Magnetic susceptibility analysis on Zn-doping in the high T_c superconductor $YBa_2Cu_3O_7$[1] ZACHARY C.M. WINTER, MICHAEL G. SMITH, ALWYN REBELLO, JOHN J. NEUMEIER, Montana State University — Localized magnetic moments are known to destroy superconductivity in conventional superconductors. In the case of $YBa_2Cu_3O_7$ (YBCO), the nonmagnetic ion Zn has a very strong impact on suppressing the superconducting transition temperature (T_c). YBCO loses all superconductivity when only 10% of the Cu is substituted with Zn.[2] In this project, we have investigated the magnetic susceptibility for a number of Zn doping levels in samples with the nominal composition $YBa_2(Cu_{1-x}Zn_x)_3O_7$. We observe the development of Curie-Weiss paramagnetism for some Zn compositions, and will address whether the associated paramagnetic moments might cause magnetic pair-breaking.

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[2]R. E. Walstedt et al. Phys. Rev. B, **48**, 10646 (1993)

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