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Ignition of magnetic deflagration in Mn_{12} acetate SEAN MCHUGH, R. JAAFAR, M.P. SARACHIK, City College of New York, Y. MYASOEDOV, A. FINKLER, H. SHTRIKMAN, E. ZELDOV, The Weizmann Institute of Science, R. BAGAI, G. CHRISTOU, University of Florida — We study the conditions for the ignition of two types of magnetic avalanches in the molecular magnet Mn_{12}-acetate corresponding to the major species and a fast-relaxing minor species. The minor component, which has a lower anisotropy barrier, exists in these crystals at the level of $5-7\%$. The ignition temperatures are measured using small ($30 \times 30\mu m^2$) Ge thermometers. In addition, the magnetization dynamics are measured using an array of Hall sensors of comparable size. Various aspects of the ignition will be discussed, including: the reduction of the ignition threshold due to quantum tunneling, the catalytic effect of the minor species, and the shift of the ignition point as a function of external magnetic field. The work at City College was supported by NSF grant DMR-00451605. E. Z. acknowledges the support of the Israel Ministry of Science, Culture and Sports. Support for G. C. was provided by NSF grant CHE-0414555.

Sean McHugh
City College of New York

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