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Magnetoresistance in the High Magnetic Field Regime for Organic Semiconductors[1] J.L. MARTIN, V.N. PRIGODIN, J.D. BERGESON[2], Dept. of Physics, The Ohio State University, C.Y. KAO, Dept. of Chemistry, The Ohio State University, A.J. EPSTEIN, Dept. of Physics and Dept of Chemistry, The Ohio State University — While there has been much study of the low field (of order 100 Oe) magnetoresistance in organic semiconductor (OSC) materials, very little has been done in high fields of order 10kOe. Magnetoresistance studies in the high field were conducted on the OSC materials tris-(8-hydroxyquinoline) aluminum (Alq_3) and alpha sexithiophene (α-6T). The high field shows a different response from that of the low field and displays several features suggesting that multiple mechanisms are at work. In addition, the two materials demonstrate behaviors that differ from one another, suggesting different classes of OSC. The experimental results are discussed in the context of the MIST model [1], which attributes magnetoresistance to the recombination of electron-hole pairs with interconversion of singlets and triplets. [1] J.D. Bergeson, *et al.*, PRL **100**, 067201 (2008).

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[2]Currently at NREL

Jesse Martin
Dept. of Physics, The Ohio State University

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