

Abstract Submitted  
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**Spin and charge transport study in single crystal organic semiconductors**<sup>1</sup> KARTHIK V. RAMAN, CARLIJN L. MULDER, MARC A. BALDO, JAGADEESH S. MOODERA, MIT — Spin transport studies in amorphous rubrene films have shown exciting and promising results [1]. A large spin diffusion length in these amorphous films has increased the motivation to perform spin transport study in high purity single crystal rubrene. This will provide the fundamental understanding on the spin transport behavior in OS; not influenced by defects or traps. We will present work on small channel single crystal rubrene FET device with magnetic electrodes. For example, our preliminary studies have show mobility for FET with Co electrode to be  $0.014\text{cm}^2/\text{V}\cdot\text{s}$ . A study on the spin and charge transport properties in single crystals of OS with magnetic electrodes is being done and the results will be reported. The influence of gate voltage and applied magnetic field on the transport properties will be discussed. [1] J.H. Shim et al., PRL **100**, 226603 (2008)

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