

Abstract Submitted  
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**Trapping carriers in organic field-effect transistors by metal nanoparticles**<sup>1</sup> YU CHEN, MASAYA NISHIOKA, ALLEN GOLDMAN, School of Physics and Astronomy, University of Minnesota — A thin layer of metallic Au nanoparticles was coated on substrates that were used for organic field-effect transistors, in order to study how the motion of carriers in the organic was affected by metal/organic coupling. A huge reduction of mobility was observed, due to the increase of the characteristic activation energy. We speculate that this follows from the polaronic motion of carriers resulted from the organic/metal coupling, similar to the organic/dielectric coupling. Further experiments demonstrate that the performance of those devices can be adjusted by changing the configurations of nanoparticles.

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