

Abstract Submitted
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A Systematic Study of Metal Contacts on Single Crystalline Rubrene¹ WOO-YOUNG SO, Columbia University, A. MIKE SERGENT, Bell Labs, CHRISTIAN KLOC, Bell Labs, ARTHUR RAMIREZ, Bell Labs, Columbia University — The performance of semiconductor devices is critically dependent on the metal- semiconductor heterojunction. In organics, despite the technological importance of such interfaces, little is known about the fundamental mechanisms that govern their performance in real devices. We have studied a series of metal contacts on rubrene single crystals and find systematic dependence of the transport barrier on the metal workfunction. These data provide insight into surface states that strongly influence the contact resistance. In the process of the study of metal-rubrene heterojunctions, we have realized an efficient single-crystal rubrene diode employing a hole-blocking metal contact.

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