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Interface and bulk controlled charge transport in Pd/CuPc/Pd sandwich devices CORNELIU COLESNIUC, IVAN SCHULLER, University of California San Diego, La Jolla, Ca 92093 — We present transport measurements in thin film devices of copper phthalocyanine sandwiched between palladium electrodes. The devices were grown in-situ using molecular beam deposition of phthalocyanine films with the thickness ranging between 30 and 600 nanometers. The I-V characteristics as a function of temperature and thickness exhibit two distinct regions - a low voltage Ohmic region with current proportional to the voltage and a high voltage region with a power law dependence. At low voltages the current shows an inverse power dependence on thickness, I$\sim$thickness $^{-n}$, with the exponent n $>$ 2, suggesting that both the interfaces and the film control the transport mechanism. The temperature dependence of the current does not show a clear activated behavior, supporting the same conclusion. On the other hand, at high voltages the power–law exponent of the I-V decreases at lower thickness for constant temperature implying also that both the interfaces and the film may control the transport. Work supported by AFOSR.

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