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Shot Noise in Single-Molecule Transistors ZACHARY KEANE, DOUGLAS NATELSON, Rice University — While single-molecule electronic devices have been studied extensively, both experimentally and theoretically, a detailed understanding of the physics of charge transport through molecules is still lacking. Recent experiments have shown that it is feasible to measure shot noise in mechanically fabricated single-molecule transistors. Shot noise is a particularly interesting measurement in that it has the potential to reveal details about the correlations between electrons as they cross a molecule. In devices known to exhibit strong correlated-electron effects (e.g. in the Kondo regime), shot noise measurements could provide useful guidance to theorists as they attempt to develop working models for electron transport. We present preliminary results of noise measurements in three-terminal single-molecule devices fabricated by electromigration.

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