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Scanning tunnelling spectroscopy of single molecule on a semiconductor surface BORISLAV NAYDENOV, PETER RYAN, Trinity College Dublin, LUCILE TEAGUE, NIST, JOHN BOLAND, Trinity College Dublin — Scanning tunnelling spectroscopy was performed on 1,3-cyclohexadiene molecules on Si(100) surface at 5K. Degenerated N-type semiconductor and platinum covered tungsten tips were used. For the first time a vibrational spectrum of chemisorbed molecule on semiconductor surface was obtained. The probe induced perturbations of the molecule electronic density of states and its vibrational properties were also investigated. Transition from tunnelling to contact regime between the probe and the molecule was successfully monitored.

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