Abstract Submitted
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Spectroscopic STM study of the binding configuration of benzene molecules on the Si(111)7x7 surface[1] STEVEN A. HORN, Department of Physics, University of Lethbridge, Lethbridge, Alberta, T1K 3M4, Canada, WEIMING LIU, Department of Physics, University of Lethbridge, Lethbridge, Alberta, T1K 3M4, Canada, S.N. PATITSAS, Department of Physics, University of Lethbridge, Lethbridge, Alberta, T1K 3M4, Canada — We have used a home-built UHV STM to study the bonding configuration of benzene molecules chemisorbed onto clean silicon. Our compact STM head is based on the symmetrical, Besocke design. In our design, thermal drift is eliminated to first order, by using the correct combination of materials with known thermal expansion coefficients.[1] This STM head is also capable of being positioned inside of a liquid helium cryostat currently under construction in our lab. Our long-term goal is to use spectroscopic dI/dV imaging to focus on spatial variations of the LDOS and gain valuable information not generally available in topographic imaging.[2] In particular we will present room-temperature results on the role of restatoms in the binding of benzene molecules to adjacent adatoms. Results on the spatial position and direction of C-C double bonds will also be presented. 1)Stipe *etal*, *Rev. Sci. Instr.* **70**, 137 (1999). 2)Hamers *etal*, *Phys.Rev.Lett.* **56**, 1972 (1986).

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