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STM studies of the molecular-level organization of chiral tartaric acid domains on Ag(111) NANCY SANTAGATA, AMIT LAKHANI, DARRYL DEWITT, THOMAS PEARL, North Carolina State University — The expression of chirality in molecular domains on surfaces has important implications for enantioselective catalysis and chemically tuned thin films. In this talk we will discuss the organizational structure of a chiral molecule, tartaric acid ($C_4H_6O_6$), weakly bound to an achiral metal surface, Ag(111), as studied with low temperature scanning tunneling microscopy (STM). Molecularly resolved images of both (R, R)- and (S, S)- tartaric acid on Ag(111) will be presented, and the role of intermolecular hydrogen bonding in stereospecific domain and superlattice formation will be addressed. In addition, we will consider chiral domain formation and phase separation from a racemic mixture of both tartaric acid enantiomers. Finally, we will present data that indicates a proposed multilayer structure and discuss the growth mode associated with its formation.

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