

Abstract Submitted  
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**Self-assembly of isonicotinic acid molecules into supramolecular films on Ag (111)** BO XU, HUI LI, JANICE REUTT-ROBEY, Univ. of Maryland — Self assembly processes of isonicotinic acid (INA) molecules into supramolecular structures on Ag (111) surface are studied with UHV-STM, XPS, and IR spectroscopy. INA molecule contains both a ring nitrogen and carboxyl tail, which lead to a tape-like molecular solid. At room temperature, INA molecules organize into 2D islands that exceed 100 nm on Ag (111), demonstrating 2D H-bonding interactions. A series of carboxy O-H•••N hydrogen bonds assemble INA molecules into linear chains, while weaker hydrogen bonds between carbonyl O and aromatic H link the chains sideways into ordered 2D structures. Different orientational domains are observed and the domain walls (carboxyl-carboxyl coupling) establish the molecular dipole direction. XPS spectroscopy corroborates the H-bonding interactions, while IR spectroscopy was used to assess INA molecular orientation with respect to the surface plane.

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