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Interface and Crystallinity of 1,4,5,8,9,11-Hexaazatriphenylene-hexanitrile thin films between an Organic and Transparent Conductive Oxide layers

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We have investigated the crystallinity, preferential ordering, and interfacial stability of 1,4,5,8,9,11-hexaazatriphenylene-hexanitrile (HATCN) thin film interconnected with organic/inorganic multilayer. At the region close to the organic-organic interface, HATCN formed low crystalline order with substantial amorphous phase. As film growth continued, HATCN stacked with high crystalline phase. After a sputtering deposition of the indium zinc oxide (IZO) layer on top of HATCN/organic layer, the volume fraction of preferentially ordered HATCN crystals increased without any structural deterioration. In addition, the HATCN surface was kept quite stable by preserving the sharp interface between HATCN and sputtering deposited IZO layers.

Keywords: 1,4,5,8,9,11-hexaazatriphenylene-hexanitrile (HATCN); crystal; interface; IZO; GIWAXS; x-ray reflectivity

