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Paramagnetic Meissner effect in electrochemically doped Indium-Tin Oxide films ALI ALIEV, Alan G. MacDiarmid NanoTech Institute, University of Texas at Dallas, Richardson, TX, 75083 — Transparent conductive indium tin oxide (ITO) thin films, electrochemically intercalated with alkali (Li^+, Na^+, K^+, Rb^+, Cs^+), alkali earth (Mg^{+2}, Ca^{+2}), or complex NH_4^+ ions show tunable superconducting transition with dome shape behavior of T_c versus electron density around the maximum at 5 K. The zero resistance transition in superconducting state is accompanied with paramagnetic Meissner response to the applied external magnetic field, i.e. the increase of magnetization in field cooling regime. We provide extensive evidences of flax trapping using dc SQUID, ac susceptibility and transport measurements. In particular, we present evidence that the paramagnetic response results from the lower T_c on the center of disk samples than on the edges leading to the trapping of magnetic flax in the center, and that change of T_c profile to opposite removes the paramagnetic response. The flux trapped state is metastable. An alteration of external magnetic field destroys the giant vortex..

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