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Superconductor-insulator transition in amorphous indium oxide films: Role of in-plane magnetic field MINSOO KIM, TAILUNG WU, GANAPATHY SAMBANDAMURTHY, SUNY Buffalo, Buffalo, NY 14260 — We present experimental results from transport studies on amorphous indium oxide films that are driven through a superconductor-insulator transition by applying a pair-breaking magnetic field. The direction of the magnetic field is varied continuously from being perpendicular to the film plane to parallel to the film plane and we identify characteristically different transport regimes at different magnetic field values when the film is rotated in a magnetic field. We also study the evolution of these transport regimes as a function of disorder in these films. A distinctly clear magnetic field value, in the insulating phase, at which the sample resistance is independent of the angle and very weakly dependent on temperature and disorder is observed. Implications for our current understanding of the 2D superconductor - insulator transition will be presented.

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