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Hole doping induced metal-insulator transition in  $Sr_{1-x}K_xIrO_4$ QING'AN LI, QINGBIAO ZHAO, B.J. KIM, J.F. MITCHELL, Argonne National Laboratory — We report a metal-insulator transition against temperature in hole doped Sr2IrO4. The temperature dependence of *ab*-plane resistivity of the doped Sr2IrO4 shows a peak at 6.5K. The magnetization against temperature shows a magnetic transition temperature about 200 K that is significantly reduced compared with its pristine material (240K). Hall effect measurements confirm that the conduction carrier is hole. A small magnetoresistance ~ 3.5% with significant anisotropy with respect to magnetic field orientation is observed, indicating the importance of spin-orbital coupling on conduction mechanism of the materials.

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