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M1Po2A-02 [26]: The Effect of Pressure and Doping on the Critical Current Density in Nickel doped BaFe2As2

Monday, July 22, 2019 2:00 PM (2 hours)

Single crystals of Ba(Fe1-xNix)2As2 have been produced for systematic magnetic measurements of the critical current density (Jc) over a range of dopings from
x=0.025 to 0.066 and a range of temperatures from 2 K. Analysis of the field dependent critical current density, Jc, shows strong evidence pointing to a flux pinning mechanism dominated by local variation in the mean free path for all dopings. The values of Jc measured indicate a peak at approximately x=0.049 on the pseudo phase diagram, close to a proposed quantum critical point at x=0.05. Pressure dependent measurements of this sample show anomalous behaviour including a negative pressure relationship and a peak in Jc around 0.65 GPa.

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