Supplement – High field superconducting properties of $Ba(Fe_{1-x}Co_x)_2As_2$ thin films

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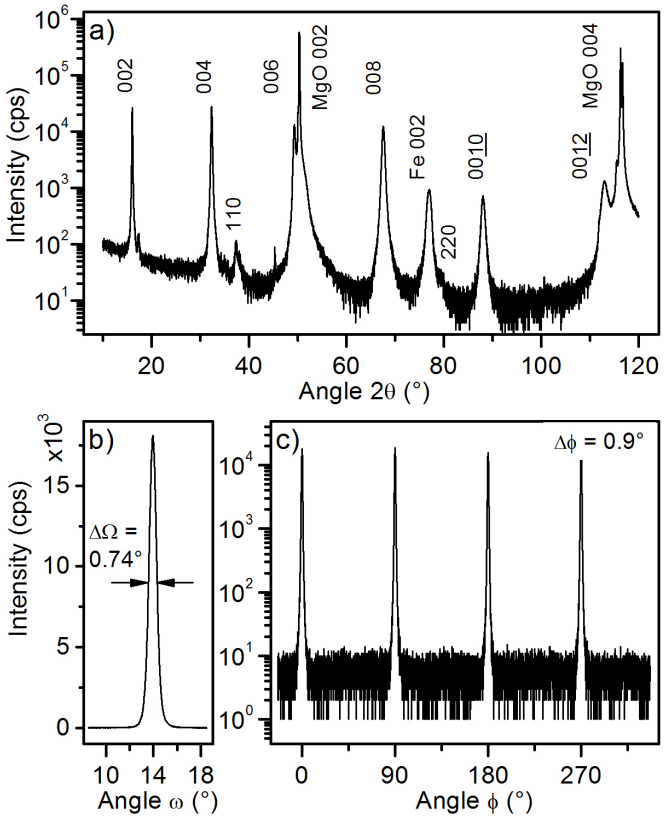

Figure S1. X-ray diffraction of the Ba-122/Fe/MgO sample: a) θ-2θ scan showing mainly *c*-axis orientation of Fe and Co-doped Ba-122 and a small component of the Co-doped Ba-122 (110) orientation, b) Co-doped Ba-122 (004) rocking curve, c) Co-doped Ba-122 (103) ϕ scan.

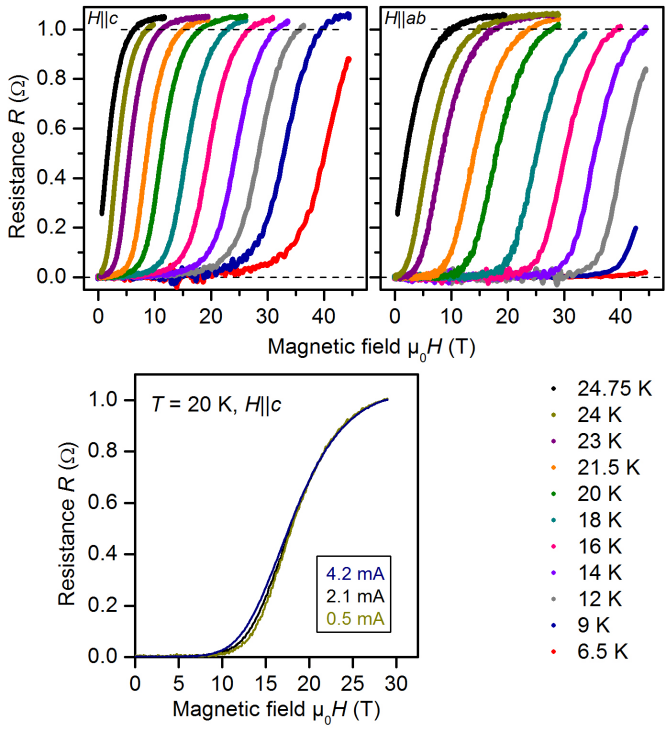

Figure S2. Field dependence of the resistance R for both major crystallographic directions, $H \| c$ and $H \| ab$, measured at the IFW Dresden pulsed field facility. The current test at 20 K, $H \| c$ (below) showed no heating effects. Differences below midpoint of transition are due to flux motion and correspond to the $J_c(H)$ dependence in the vicinity of H_{irr} (0.5 mA $\approx$ 300 A/cm^2).

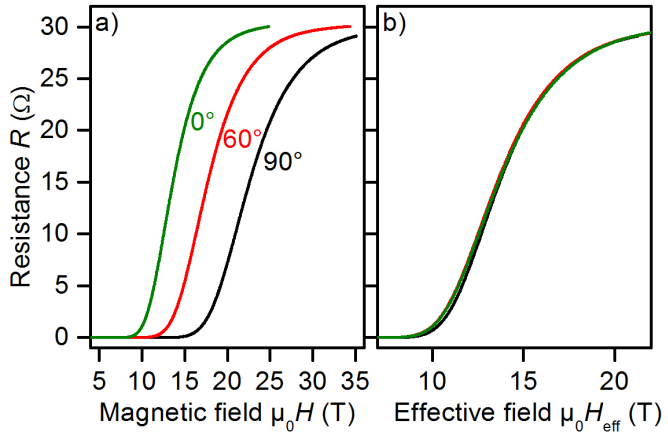

Figure S3. a) Magnetic field dependence of the resistive transition for three field orientations, b) Scaling of $R(H)$ according to $H_{eff}(\theta) = H \cdot F(\theta)$ (Eq. 2) with δ = 1.77. Above midpoint of transition, the scaling is criterion- independent, showing that our trial function describes the H_{c2} dependency. Deviations below midpoint are due to correlated pinning and a differing H_{irr} dependency.