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Upper critical field in $Ba(Fe_{1-x}Co_x)_2As_2$ and $FeSe_{1-x}$ Te_x compounds CHIARA TARANTINI, JAN JAROSZYNSKI, JIANYI JIANG, ALEX GUREVICH, DAVID C. LARBALESTIER, National High Magnetic Field Laboratory, Florida State University, Tallahassee, FL 32310, USA, RONGYIN JIN, ATHENA S. SEFAT, MICHAEL A. MCGUIRE, BRIAN C. SALES, DAVID G. MANDRUS, Materials Science & Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA — We report H_{c2} measurements in high magnetic field up to 31 T on $Ba(Fe_{1-x}Co_{1-x})_2As_2$ and $FeSe_{1-x}$ Te_x pnictide compounds for different doping levels. Both materials exhibit a very high upper critical fields and unconventional temperature dependencies of $H_{c2}(T)$ with the extremely high slopes dH_{c2}/dT from 10 to 30 T/K near T_c and a relatively low anisotropy: $\gamma = H_{c2}^{//} \Big/ H_{c2}^{\perp}$ for the doped ternary compound and $\gamma \approx 1.1 \div 1.2$ for the binary one. The observed temperature dependences of $H_{c2}(T)$ and the high H_{c2} values well above the BCS paramagnetic limit indicate the importance of the Zeeman pairbreaking effects in these compounds.

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