Magnetic ordering in EuCo$_2$As$_2$\textsuperscript{1} BALAZS SIPOS, ATHENA S. SEFAT, BRIAN C. SALES, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE 37831, USA TEAM — We have synthesized and studied EuCo$_2$As$_2$ single crystals by resistivity, magnetoresistance, and susceptibility measurements. We found antiferromagnetic (AFM) ordering of the Eu spins at $T_N = 50$ K. Upon applying a magnetic field $H \parallel ab$ at $T = 2$ K this phase exhibits a metamagnetic (MM) transition at $H_{MM} = 3.5$ T. In case of $H \parallel c$ the magnetisation increases linearly up to 7 T. The same AFM to MM transition was found at 0.5 T in EuFe$_2$As$_2$ where it was found to be due to the reorientation of the Eu spin. We found that replacing Fe with Co strengthens the coupling between the Eu moments resulting in a higher $T_N$ and $H_{MM}$.

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