

## **Ba(Fe<sub>1-x</sub>Cr<sub>x/2</sub>Ni<sub>x/2</sub>)<sub>2</sub>As<sub>2</sub>: from spin-density wave to spin glass**

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We have performed the "isoelectronic" Fe-site doping study with Cr and Ni in Ba(Fe<sub>1-x</sub>Cr<sub>x/2</sub>Ni<sub>x/2</sub>)<sub>2</sub>As<sub>2</sub> polycrystalline samples. With increasing the doping level  $x$ , the antiferromagnetic SDW is suppressed quickly for  $x < 0.1$ . Spin glass state emerges in the range of  $0.1 \leq x \leq 0.2$ , as confirmed by the ac magnetic susceptibility measurement. The spin glass state first evolves into cluster glass, and then into ferromagnetism for higher doping levels up to  $x = 1.0$ . No superconductivity was observed down to 1.8 K. The electronic phase diagram is established, and the underlying physics is discussed.