Superconductivity and ferromagnetism in RbEu(Fe\textsubscript{1-x}Ni\textsubscript{x})\textsubscript{4}As\textsubscript{4}.  
YI LIU, YA-BIN LIU, GUAN-HAN CAO, Zhejiang Univ — Hole-doped iron pnictides A\textsubscript{2}EuFe\textsubscript{4}As\textsubscript{4} (A = Rb, Cs) are ferromagnetic superconductors with bulk superconductivity at $T_c \approx 35$ K and Eu-spin ferromagnetism at $T_m \approx 15$ K. Here, we investigate the hole-compensation effect in RbEu(Fe\textsubscript{1-x}Ni\textsubscript{x})\textsubscript{4}As\textsubscript{4} by electron doping through Ni substitution. We find that $T_c$ decreases monotonically with increasing Ni concentration, and superconductivity vanishes at $x \approx 0.1$ accompanying with the revival of spin-density wave. On the other hand, the Eu-spin ferromagnetism is very robust against the Ni doping, and to our surprise, $T_m$ hardly changes. Consequently, a superconducting magnet, RbEu(Fe\textsubscript{0.925}Ni\textsubscript{0.075})\textsubscript{4}As\textsubscript{4}, in which $T_c$ (~5 K) is lower than $T_m$, is obtained. The electronic phase diagram is concluded.