

Supplementary information

Structural and Superconducting Proximity Effect of SnPb Bimetallic Alloys

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Figure S1 (a)-(k) The EDS mapped SEM images of $\text{Sn}_r\text{Pb}_{1-r}$ bimetallic nanoalloys, where red and green represent the atomic percent of Pb and Sn, respectively. The EDS mapping images of $\text{Sn}_r\text{Pb}_{1-r}$ nanoalloy show the distribution of segregated Sn (bright green color) and Pb (red color) elements with grain size varying from $\langle d \rangle = 121(10) \sim 46(3)$ nm.

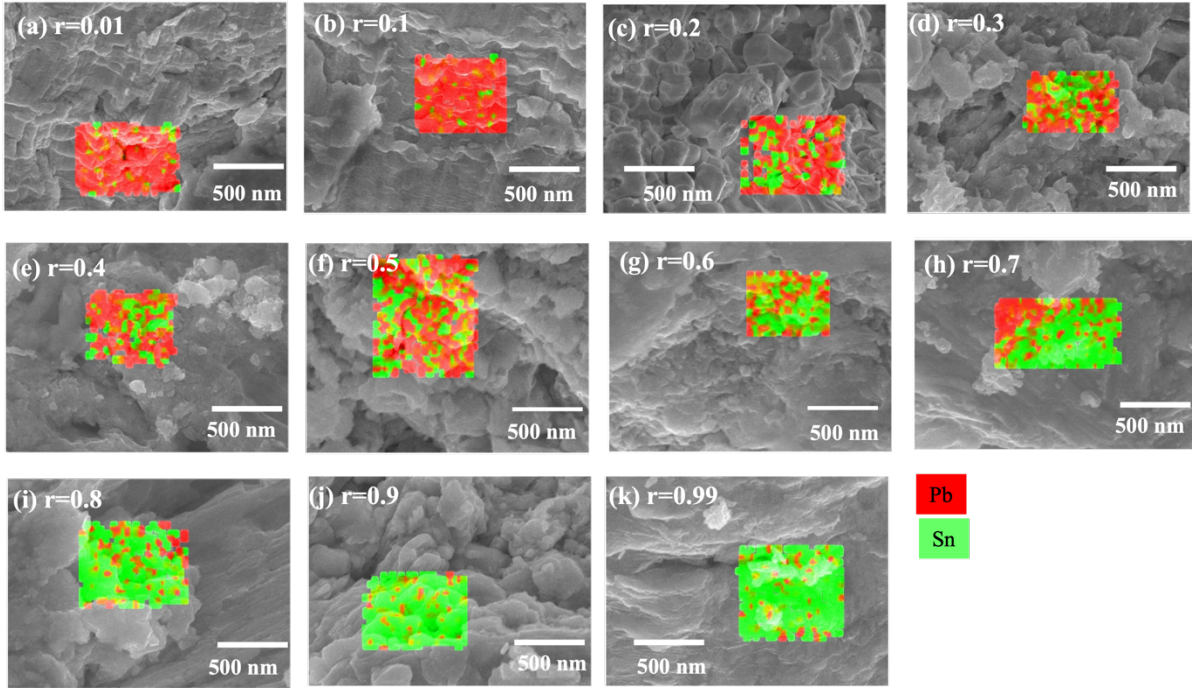


Figure S2 (a)–(f) Temperature dependence of magnetization measured between 2 to 8 K in an external magnetic field of $H_a = 100$ Oe in the ZFC and FC modes for $r = 0.1, 0.2, 0.3, 0.4, 0.5$ and 0.6 nanoalloys.

The red and blue solid curve presents the fitted curve of the modified London expression to the data.

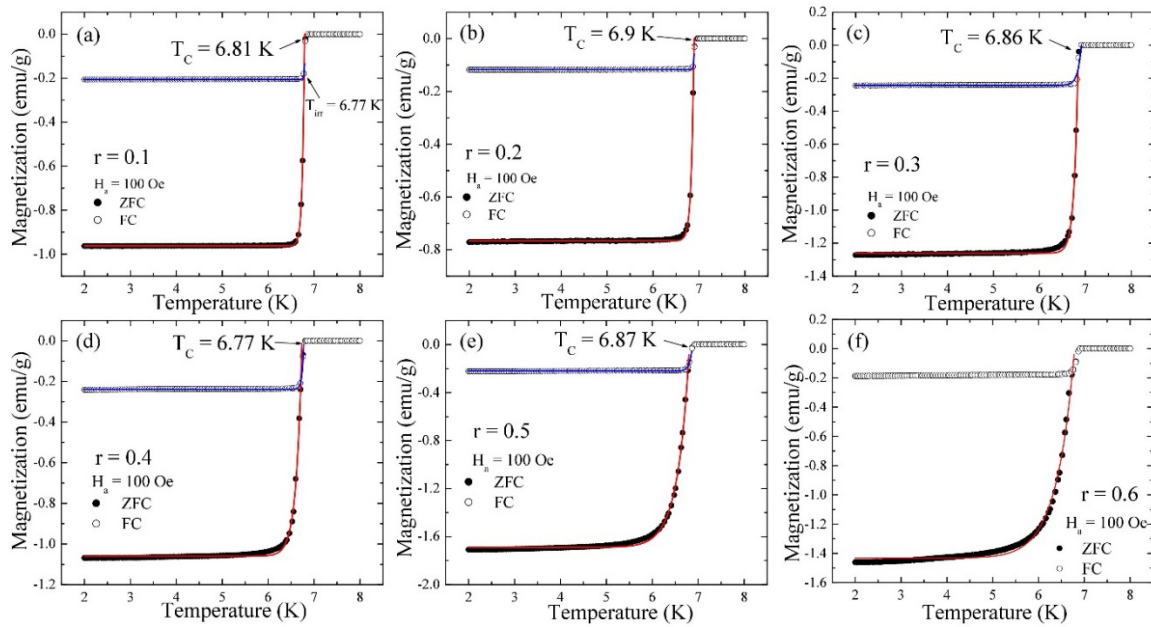


Figure S3 (a)-(f) The isothermal magnetization $M(H_a)$ loops measured at 2 K for $r = 0.1$ -0.6 nanoalloys.

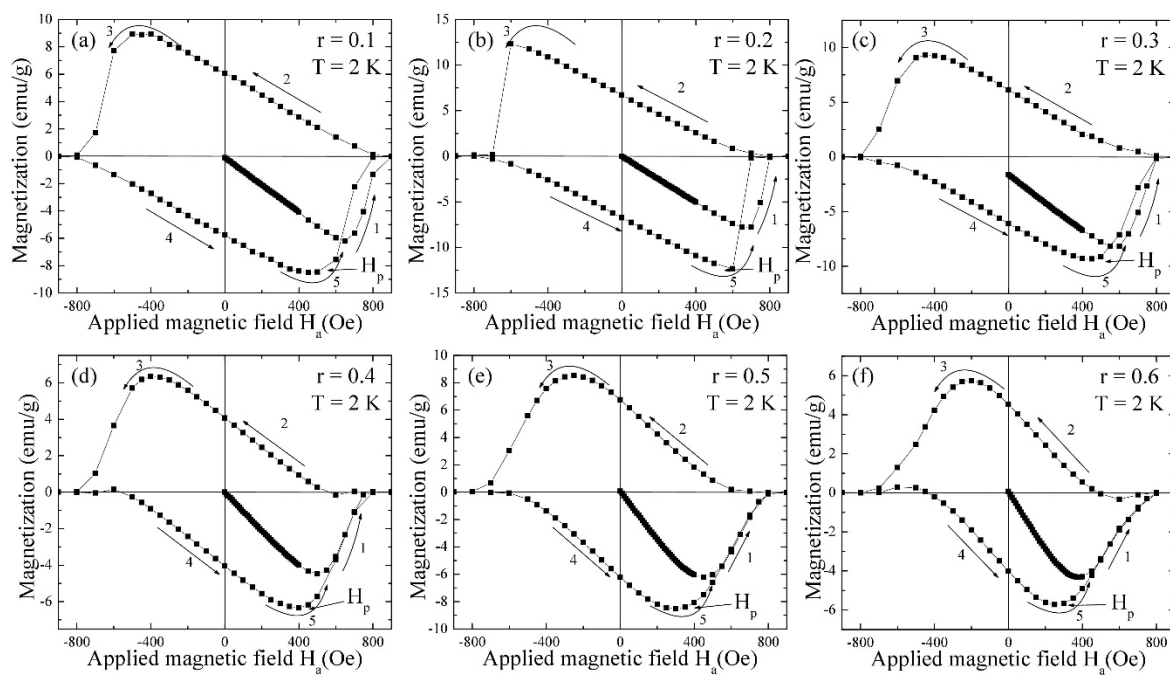


Figure S4 (a)-(f) The $M(H_a)$ loops were measured using protocol 0 Oe \rightarrow +900 Oe \rightarrow 0 Oe field at a higher temperature up to 7 K for $r = 0.1$ -0.6 nanoalloys.

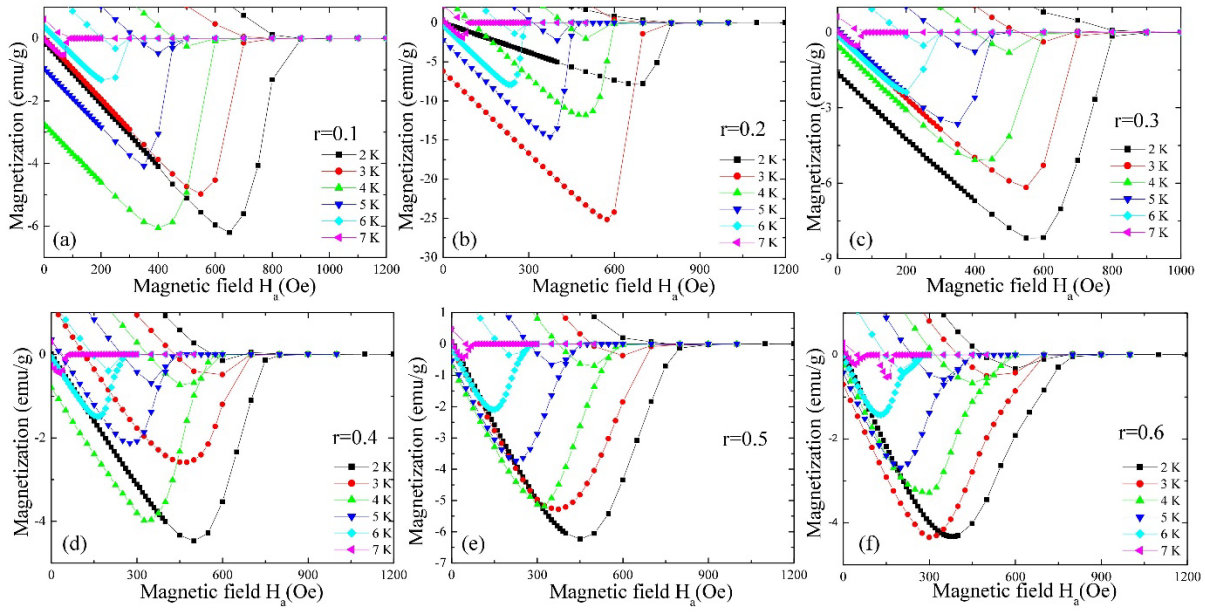


Figure S5 (a)-(k) Temperature dependence of ZFC magnetization $M(T)$ measured between 2 to 8 K with different external magnetic fields varying from 10 to 700 Oe for all $\text{Sn}_r\text{Pb}_{1-r}$ bimetallic nanoalloys.

The solid curve presents the fitted curve of the modified London expression to the data.

