



Editors' Comments on "The Superconducting Phase Diagram of $\text{ThFe}_{1-x}\text{Ni}_x\text{AsN}$ "

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The article entitled "The Superconducting Phase Diagram of $\text{ThFe}_{1-x}\text{Ni}_x\text{AsN}$ " by F. Jiao et.al. (JOSC 20-00657) from China has been selected as an outstanding article which deserves an editor highlighting.

The article is written in a short, clear, and concise manner and deals with the phase diagram of the iron-based $\text{ThFe}_{1-x}\text{Ni}_x\text{AsN}$ (1111) system. XRD measurements confirm the purity of all materials studied. Both pure ThFeAsN and ThNiAsN are unconventional and conventional superconducting materials, with T_c of 30 and 4.8 K respectively. Their superconducting properties were investigated by clear resistivity and dc magnetization studies.

The intermediate compounds were expected to be superconducting at a temperature range between the two pure

compounds. Surprisingly, the authors prove by various experimental methods, that 1% of Fe doped in ThNiAsN and around 10% of Ni doped in ThFeAsN materials are sufficient to suppress superconductivity. Thus, superconductivity of ThFeAsN is much more sensitive to in-plane disorder than that of all other 1111 doped materials. The superconducting phase diagram of $\text{ThFe}_{1-x}\text{Ni}_x\text{AsN}$ is drawn to summarize the doping results. All materials which are not superconducting show semiconductor-like behavior. In that sense, this system is a unique unit that deserves special enlightenment.

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Editor's Pick

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