The understanding of unconventional superconductivity is one of the most challenging and fascinating tasks of solid-state physics. Different classes of unconventional superconductors share that superconductivity emerges near a magnetic phase despite that the underlying physics is different. Two of these unconventional materials are the heavy-fermion and the iron-based superconductors.

Researcher from the Max Planck Institute for Chemical Physics of Solids applied large hydrostatic pressures to tiny single crystals of CeFeAsO, a non-superconducting parent compound to iron-based superconductors, using diamond anvil pressure cells. By electrical, magnetic and structural measurements they showed that upon increasing the applied pressure, the material characteristics change from that of an iron-pnictide material to that of a heavy-fermion metal.

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