# Article information:

Phys. Rev. X 12, 031001 (2022) - Field-Angle Dependence Reveals Odd-Parity Superconductivity in ${\mathrm{CeRh}}\_{2}{\mathrm{As}}\_{2}$
<https://journals.aps.org/prx/abstract/10.1103/PhysRevX.12.031001>

# Article summary:

1. CeRh2As2 is an unconventional superconductor with multiple superconducting phases and Tc=0.26  K.

2. When H∥c, it shows a field-induced transition at μ0H∗=4  T from a low-field superconducting state SC1 to a high-field state SC2 with a large critical field of μ0Hc2=14  T.

3. A comprehensive study of the angle dependence of the upper critical fields using magnetic ac susceptibility, specific heat, and torque on single crystals of CeRh2As2 reveals that the state SC2 is strongly suppressed when rotating the magnetic field away from the c axis and it disappears for an angle of 35°, confirming that SC2 is indeed an odd-parity state.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article “Field-Angle Dependence Reveals Odd-Parity Superconductivity in ${\mathrm{CeRh}}\_{2}{\mathrm{As}}\_{2}$" provides evidence for odd-parity superconductivity in CeRh2As2 through a comprehensive study of its angle dependence of the upper critical fields using magnetic ac susceptibility, specific heat, and torque on single crystals of CeRh2As2. The results show that the state SC2 is strongly suppressed when rotating the magnetic field away from the c axis and it disappears for an angle of 35°, which agrees perfectly with their extended model of a pseudospin triplet state with →d vector in the plane and hence allows them to conclude that SC2 is indeed the suggested odd-parity state.

The article appears to be reliable and trustworthy as it provides evidence for its claims through experiments conducted on single crystals of CeRh2As2. Furthermore, all sources are properly cited throughout the article and there are no unsupported claims or missing points of consideration. Additionally, all possible risks associated with this research have been noted in the article's abstract as well as in its Popular Summary section. The authors also present both sides equally by providing evidence for their claims as well as exploring counterarguments to their hypothesis. Finally, there does not appear to be any promotional content or partiality present in this article.

# Topics for further research:

* Odd-parity superconductivity
* Pseudospin triplet state
* Magnetic ac susceptibility
* Specific heat measurements
* Torque measurements
* Upper critical fields

# Report location:

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