# Article information:

Materials | Free Full-Text | Pressure-Tuning Superconductivity in Noncentrosymmetric Topological Materials ZrRuAs
<https://www.mdpi.com/1996-1944/15/21/7694>

# Article summary:

1. ZrRuAs is a noncentrosymmetric topological material that has been predicted to host nontrivial bulk topology.

2. This work investigates the electronic responses of ZrRuAs to external pressure, finding that its superconducting transition temperature increases with applied pressure and reaches a maximum value of 7.93 K at 2.1 GPa.

3. The nontrivial topology is robust and persists up to the high-pressure regime, suggesting potential for studies of the interplay between topological electronic states and superconductivity.

# 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:

This article provides an in-depth analysis of the electronic responses of ZrRuAs to external pressure, focusing on its potential as a topological superconductor. The authors provide a comprehensive overview of the relevant literature, including previous research on ternary equiatomic transition metal phosphides TT’X (T = Zr, Hf; T’ = Ru; X = P, As). They also present their own results from first-principles calculations and experiments conducted under ambient and high-pressure conditions.

The article is generally reliable and trustworthy in terms of its content and methodology. The authors have provided sufficient evidence for their claims through detailed descriptions of their experiments and calculations, as well as references to relevant literature. Furthermore, they have discussed possible risks associated with their findings, such as the possibility that the observed effects may be due to other factors than those studied in this work.

The only potential bias in this article is that it does not explore counterarguments or alternative explanations for its findings. However, given that this is an exploratory study rather than a comprehensive review of existing literature on this topic, this omission can be forgiven. In conclusion, this article provides an informative overview of the current state of knowledge regarding pressure-tuning superconductivity in noncentrosymmetric topological materials ZrRuAs and can be considered reliable and trustworthy overall.

# Topics for further research:

* Noncentrosymmetric topological materials
* Pressure-tuned superconductivity
* Ternary equiatomic transition metal phosphides
* First-principles calculations
* High-pressure experiments
* Counterarguments and alternative explanations

# Report location:

<https://www.fullpicture.app/item/962ac32d12b45b3b0bfcecababb0af96>