# Article information:

Ordered and tunable Majorana-zero-mode lattice in naturally strained LiFeAs | Nature
<https://www.nature.com/articles/s41586-022-04744-8>

# Article summary:

1. The article discusses the potential of LiFeAs as a platform for observing Majorana zero modes (MZMs).

2. The existence of strain in the LiFeAs lattice leads to the formation of biaxial charge density waves (CDWs).

3. The CDWs are coupled with each other and modulate the superconducting gap size, potentially enabling the observation of MZMs.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy, providing evidence for its claims and exploring counterarguments. It provides a detailed description of the material platform used for observing Majorana zero modes (MZMs), namely LiFeAs, and explains how strain in this lattice leads to the formation of biaxial charge density waves (CDWs). The article also provides evidence for its claims by presenting atomically resolved scanning tunnelling microscopy images and Fourier transform images that show the wavevectors of both CDW phases. Furthermore, it presents dI/dV spectra taken at different regions on the surface which demonstrate how these CDWs modulate the superconducting gap size, potentially enabling the observation of MZMs.

The article does not appear to be biased or one-sided in its reporting, as it presents both sides equally and explores counterarguments. It also does not appear to contain any promotional content or partiality towards any particular point of view. Additionally, possible risks are noted throughout the article, such as alloying induced disorder which can hinder potential applications.

In terms of missing points or evidence for claims made, there is no mention of any experiments that have been conducted to verify whether MZMs can actually be observed in LiFeAs due to these CDWs. This would provide further evidence for this claim and strengthen its reliability. Additionally, there is no discussion about how these CDWs could be tuned or manipulated in order to enable more precise control over MZM observation. This could be explored further in future research on this topic.

# Topics for further research:

* Majorana zero modes observation
* LiFeAs strain manipulation
* Atomically resolved scanning tunnelling microscopy
* Fourier transform imaging
* Alloying induced disorder
* Superconducting gap modulation

# Report location:

<https://www.fullpicture.app/item/a581f1dcddb11134a65739caafecace5>