# Article information:

相控阵纵波法检测铝合金内部应力的实验研究
<https://zrb.bjb.scut.edu.cn/CN/10.12141/j.issn.1000-565X.220322>

# Article summary:

1. This article studies the stress detection method of aluminum alloy plates using phased array longitudinal wave detection technology.

2. The experiment results show that the phased array longitudinal wave method can effectively improve the accuracy and efficiency of internal stress detection of aluminum alloy.

3. The linear correlation coefficients between stress and acoustic time difference are 0.9986 and 0.9973 for 5mm and 3mm aluminum alloy plates respectively, indicating a good linear relationship between them.

# 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 in terms of its content, as it provides a detailed description of the research conducted on the stress detection method of aluminum alloy plates using phased array longitudinal wave detection technology, as well as the results obtained from experiments conducted on 5mm and 3mm aluminum alloy plates. The article also presents a clear explanation of how the interpolation algorithm and cross-correlation algorithm were used to improve accuracy, as well as how the linear correlation coefficients between stress and acoustic time difference were calculated for both 5mm and 3mm aluminum alloy plates.

However, there are some potential biases in this article that should be noted. For example, while it does provide an overview of how this technique can be used to detect internal stresses in aluminum alloys, it does not explore any potential risks associated with this technique or any other possible methods that could be used instead. Additionally, while it does mention that experiments were conducted on both 5mm and 3mm aluminum alloy plates, it does not provide any information about what other sizes or types of materials may have been tested or considered during this research process. Furthermore, while it does present some evidence for its claims made regarding accuracy levels achieved by this technique, it does not provide any further evidence to support these claims or explore any counterarguments that may exist against them.

In conclusion, while this article is generally reliable in terms of its content, there are some potential biases that should be noted when considering its trustworthiness and reliability. It is important to consider these potential biases when evaluating the overall trustworthiness and reliability of this article's claims made regarding accuracy levels achieved by this technique for detecting internal stresses in aluminum alloys.

# Topics for further research:

* Internal stress detection methods
* Aluminum alloy plate stress detection
* Interpolation algorithm accuracy
* Cross-correlation algorithm accuracy
* Linear correlation coefficients for stress detection
* Alternative stress detection techniques

# Report location:

<https://www.fullpicture.app/item/dcc772427c25ba33586a6838266c8e3b>