# Article information:

基于超声复合反射系数的同时测量多孔涂层的厚度和声速 - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S0963869522000822>

# Article summary:

1. Ultrasound pulse echo method is widely used to measure the thickness of coatings.

2. A new method is proposed that does not require wave attenuation coefficient to effectively solve the problem of measuring the thickness and sound velocity of porous coatings.

3. The effectiveness of this method was verified by acoustic finite element simulation and experimental measurements on 8YSZ thermal barrier coatings.

# 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, as it provides a detailed description of a new method for measuring the thickness and sound velocity of porous coatings using ultrasound pulse echo method without requiring wave attenuation coefficient. The effectiveness of this method was verified by acoustic finite element simulation and experimental measurements on 8YSZ thermal barrier coatings, providing evidence for its reliability.

However, there are some potential biases in the article that should be noted. For example, the article does not explore any counterarguments or alternative methods for measuring the thickness and sound velocity of porous coatings, which could provide a more comprehensive understanding of this topic. Additionally, there is no discussion about possible risks associated with this new method, such as potential inaccuracies due to environmental factors or other sources of error. Finally, while the article provides evidence for its claims through acoustic finite element simulation and experimental measurements on 8YSZ thermal barrier coatings, it does not provide any evidence from other sources or materials that could further support its claims.

# Topics for further research:

* Alternative methods for measuring thickness and sound velocity of porous coatings
* Potential risks associated with ultrasound pulse echo method
* Environmental factors affecting accuracy of ultrasound pulse echo method
* Experimental measurements on other materials using ultrasound pulse echo method
* Accuracy of acoustic finite element simulation
* Sources of error in measuring thickness and sound velocity of porous coatings

# Report location:

<https://www.fullpicture.app/item/6922642b9a5925e4a8819a1a6df4c6bc>