# Article information:

仿生鳞片防护系统弹道撞击行为的数值模拟 - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0264127516302829>

# Article summary:

1. This article discusses the use of biomimetic composite scales for protection against ballistic impacts.

2. It examines the mechanical properties of fish scales and their potential to be used in protective systems.

3. The article also explores the effects of overlapping scales, different ceramic types, Kevlar layers, and bullet impact velocity on the performance of these systems.

# 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 comprehensive overview of the research conducted on biomimetic composite scales for protection against ballistic impacts. The authors provide detailed information about the materials used in their study, such as carbon silicate (SiC), carbon boron (B4C), aluminum oxide (Al2O3), steel 4340, and Al 6061-T6, along with their respective material parameters. Furthermore, they discuss various aspects related to overlapping scales, different ceramic types, Kevlar layers, and bullet impact velocity that can affect the performance of these systems.

However, there are some points that could have been explored further in this article. For example, while the authors discuss how overlapping scales can improve damage tolerance by redistributing penetration loads and reducing local stresses, they do not provide any evidence or data to support this claim. Additionally, while they mention that single fish scale behavior has been studied very little so far, they do not elaborate on what kind of studies have been conducted or what results were obtained from them. Moreover, while they discuss how Kevlar layers can improve damage tolerance by absorbing energy from ballistic impacts more efficiently than other materials such as polycarbonate or polystyrene, they do not provide any evidence or data to back up this claim either.

In conclusion, while this article is generally reliable and trustworthy due to its comprehensive overview of research conducted on biomimetic composite scales for protection against ballistic impacts and its detailed discussion about various aspects related to overlapping scales and different ceramic types that can affect their performance; it could have explored certain points further by providing evidence or data to support its claims regarding overlapping scales’ ability to improve damage tolerance and Kevlar layers’ ability to absorb energy from ballistic impacts more efficiently than other materials such as polycarbonate or polystyrene.

# Topics for further research:

* Biomimetic composite scales ballistic impact performance
* Overlapping scales damage tolerance
* Kevlar layers ballistic impact absorption
* Polycarbonate ballistic impact absorption
* Polystyrene ballistic impact absorption
* Single fish scale behavior studies

# Report location:

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