# Article information:

Influence from the inclined angle of the indenter for determination of residual stress and strain fields by sharp indentation testing - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0924013606011423>

# Article summary:

1. Sharp indentation testing can be used to determine residual stress and strain fields in materials.

2. The relative contact area, rather than material hardness, is sensitive to residual stresses in sharp indentation testing.

3. Equi-biaxial residual stress fields can be accurately determined using a universal curve based on the relative contact area.

# 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 titled "Influence from the inclined angle of the indenter for determination of residual stress and strain fields by sharp indentation testing" provides a detailed analysis of the influence of residual stresses and strains on the results obtained from sharp indentation tests. The article presents a comprehensive review of previous investigations in this area, highlighting the progress made in understanding the problem.

The article is well-written and provides a clear overview of the theoretical background and previous findings related to sharp indentation testing. The authors have used a range of sources to support their arguments, including experimental data, numerical simulations, and theoretical models. However, there are some potential biases in the article that need to be considered.

One potential bias is that the article focuses primarily on equi-biaxial residual stress and strain fields. While this is an important area of investigation, it may not be representative of all real-world scenarios. The authors acknowledge this limitation but do not explore other types of residual stress fields in detail.

Another potential bias is that the article relies heavily on numerical simulations to support its arguments. While numerical simulations can provide valuable insights into complex mechanical problems, they are not always accurate representations of real-world scenarios. The authors do not provide enough evidence to support their claims about the accuracy of their simulations or how well they reflect actual experimental results.

Additionally, there are some missing points of consideration in the article. For example, while the authors discuss how residual stresses can affect contact area at indentation, they do not explore how other factors such as surface roughness or material properties might also influence these results.

Overall, while the article provides a useful overview of previous research on sharp indentation testing and residual stresses, it has some limitations that need to be considered when interpreting its findings. Further research is needed to fully understand how different types of residual stress fields can affect sharp indentation test results and how these tests can be used effectively in real-world applications.

# Topics for further research:

* Effect of surface roughness on sharp indentation testing results
* Influence of material properties on residual stress determination by indentation
* Types of residual stress fields and their impact on indentation testing
* Comparison of numerical simulations with experimental results in sharp indentation testing
* Limitations of equi-biaxial residual stress and strain fields in real-world scenarios
* Applications of sharp indentation testing in industry and engineering.

# Report location:

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