# Article information:

Analytical Description for Solid-State Phase Transformation Kinetics: Extended Works from a Modular Model, a Review - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S1005030215002303>

# Article summary:

1. This article reviews the development of analytical models for solid-state phase transformation kinetics, which involve nucleation, growth and impingement.

2. Different experimental techniques are used to investigate the kinetics of crystallization of amorphous alloys and solid-state phase transformations in Fe-based alloys.

3. The analytical model has been modified to take into account soft impingement, anisotropic growth, thermodynamic factors, and other complex mechanisms.

# 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 provides a comprehensive review of the development of analytical models for solid-state phase transformation kinetics. It is well written and clearly structured, making it easy to follow the main points discussed in the article. The authors provide a thorough overview of the different experimental techniques used to investigate the kinetics of crystallization of amorphous alloys and solid-state phase transformations in Fe-based alloys. They also discuss how the analytical model has been modified to take into account soft impingement, anisotropic growth, thermodynamic factors, and other complex mechanisms.

The article is generally reliable and trustworthy as it provides a detailed overview of the development of analytical models for solid-state phase transformation kinetics with references to relevant research papers. However, there are some potential biases that should be noted. For example, while the authors discuss various aspects related to kinetic analysis recipes for extracting more crucial kinetic information from experimental data, they do not explore any counterarguments or alternative approaches that could be taken when analyzing such data. Additionally, while they discuss how chemical and mechanical driving forces can be coupled into the analytical model to yield more reasonable explanations for many kinetic phenomena appearing in proximity to equilibrium state, they do not provide any evidence or examples that demonstrate this coupling in practice.

In conclusion, this article provides a comprehensive review on the development of analytical models for solid-state phase transformation kinetics with references to relevant research papers; however there are some potential biases that should be noted when assessing its trustworthiness and reliability.

# Topics for further research:

* Kinetic analysis recipes
* Chemical driving forces
* Mechanical driving forces
* Soft impingement
* Anisotropic growth
* Thermodynamic factors

# Report location:

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