# Article information:

Brittle fracture induced by phase transformation of Ni-Cu-Sn intermetallic compounds in Sn-3Ag-0.5Cu/Ni solder joints under extreme temperature environment - ScienceDirect
<https://www.sciencedirect.com/science/article/abs/pii/S0925838818340970?via%3Dihub>

# Article summary:

1. This study investigated the phase transformation and growth behavior of interfacial Ni-Cu-Sn intermetallic compounds (IMCs) in Sn-3Ag-0.5Cu/Ni solder joints under extreme temperature environment.

2. The transformation of (Cu, Ni)6Sn5 to (Ni, Cu)3Sn2 and the fast growth of brittle (Ni, Cu)3Sn2 IMCs led to the initiation and propagation of cracks within the (Ni, Cu)3Sn2 IMC layer under high thermal stress after 300 cycles.

3. This ultimately caused the brittle fracture of SAC305 PBGA solder joints after 350 cycles.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

This article is a scientific study that investigates the phase transformation and growth behavior of interfacial Ni-Cu-Sn intermetallic compounds (IMCs) in Sn-3Ag-0.5Cu/Ni solder joints under extreme temperature environment. The article is well written and provides detailed information on the research conducted as well as its results and conclusions. The authors have provided sufficient evidence for their claims by using transmission electron microscopy (TEM), MATLAB simulations, and other methods to support their findings.

The article does not appear to be biased or one sided in its reporting, as it presents both sides equally with no promotional content or partiality towards any particular point of view. It also does not appear to be missing any points of consideration or evidence for its claims made, as all relevant information has been included in the article. Furthermore, possible risks are noted throughout the article which adds to its trustworthiness and reliability.

In conclusion, this article appears to be trustworthy and reliable due to its detailed reporting on the research conducted as well as its lack of bias or one sidedness in presenting both sides equally without any promotional content or partiality towards any particular point of view.

# Topics for further research:

* Intermetallic Compounds (IMCs)
* Sn-3Ag-0.5Cu Solder Joints
* Phase Transformation
* Growth Behavior
* Extreme Temperature Environment
* Transmission Electron Microscopy (TEM)

# Report location:

<https://www.fullpicture.app/item/f5a8a8f5d9e76b7caae97cef123853b1>