

Development of Cuboidal γ' Phase in Ni-based alloys Assistant Professor Hiromu Hisazawa



Content: We are tying to unclear the mechanism of γ' morphology (shape, distribution and other characteristics of γ' precipitates) in Ni-based alloys.

Ni-based alloys are famous as a structural material at high temperature such as power generators and jet engines, whose microstructure are dramatically changing in service as shown in left figures. γ' precipitates make the alloy strong and its morphologies should affect the performance. We are trying to understand and control them through following approaches.

- Simple alloy system and special experiment conditions were carefully selected to extract the key factor of γ' morphologies. It is just for understanding mechanism of γ' morphologies directly.
- ② The imaging process to evaluate the γ' morphologies is being developed due to the difficulties of explanation and discovery of them. The Ni-based alloys are ones of the most simple 2 phase alloy, which is desirable as a model case of "computing microstructure quality management".

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