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Microstructural Degradation of Superalloys during Service: Mechanical and/or Corrosion

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Deadline for manuscript submissions:

closed (15 December 2021)

Message from the Guest Editors

Dear Colleagues,

Superalloys used as blade material for gas turbines are strengthened by small intermetallic γ' -precipitates of the Ni_3Al type. γ' -precipitation provides excellent mechanical properties at high temperatures, but its efficiency strongly depends on the size and morphology of the γ' -precipitates. During high temperature service in aircraft and power gas turbines, the γ/γ' -microstructure of nickel-base superalloys gradually degrades. This degradation of the microstructure deteriorates the mechanical properties.

In this issue, we invite contributions on the microstructure degradation of superalloys and the microstructural characterization and relationships between microstructure and its properties. The submitted works are expected to feature but are not limited to the following topics:

- Microstructural characterization of superalloys;
- Relationship between microstructural variation and its properties;
- Microstructural variation during corrosion of superalloys;
- Stress corrosion induced microstructural degradation in superalloys;
- Evaluation of serviced turbine blade;
- Newly developed superalloys: high entropy alloys, etc.



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Special Issue



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Message from the Editor-in-Chief

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