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Area B: Structural Materials

Symposium B3:

Title: High-temperature alloys and intermetallic, titanium aluminides

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Abstract

The aspiration for improved thermal efficiency in energy conversion and aircraft propulsion systems is now dramatically increasing the demand for structural materials capable of operating at ever-higher temperatures and stresses. To meet this plea, there has been considerable progress in the development and enhancement of established materials such as intermetallis, steels and nickel-base superalloys through improvements in both alloy composition and production processing methods. Recently, there has also been active development of alternative metallic and intermetallic materials that may meet some of these requirements. Some of these materials, such as TiAl, are reaching a level of maturity, which may soon see their more widespread use, particularly in gas-turbine applications, whilst others, such as refractory metal silicides show promise for the future. This symposium also aims to be a meeting point for those interested in alloys (steels, oxide dispersion strengthened alloys, intermetallics) for structural applications under extreme environments in energy generation systems where superior corrosion and creep resistance are paramount.

The High Temperature Alloys Symposium will focus on the latest progress and developments related to microstructure, processing, properties and applications of high temperature alloys (e.g. Heat resistant steels, Superalloys, Intermetallics). Topics of interest range from fundamentals of phase constitution, stability and transformations, over alloy development, microstructure, mechanical and environmental response, to developments in processing methods and in technological aspects for successful commercial applications. Contributions are welcome of both experimental and modelling nature.