MECHANICS & STRUCTURAL RELIABILITY

High Temperature Creep Properties of Advanced Structural Materials

Given the simultaneous development of high temperature alloys and manufacturing processes, it is necessary to investigate the effects on creep properties of these coexisting advancements. With the resurgence of high temperature refractory alloys and oxide dispersion alloys through the relatively new material class of multi-principal element alloys and the advent of other such superalloys, it is critical to re-examine conventional behaviors of creep as these new alloys introduce additional mechanisms that have not been traditionally observed. Beyond compositional advances, there have been exceptional fabrication and processing advances in the last decade such as those in additive manufacturing that directly impact the creep properties of these materials.

This symposium focuses on the new challenges and new opportunities in advanced structural materials for service under extreme conditions and poses a reconsideration of what is thought to be typical high temperature creep behavior given this ever changing materials landscape.

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