Development of Material Process for High-Entropy Ceramic Matrix Composites using CALPHAD Tokyo University of Science, Yutaro Arai, Akane Samizo, Ryo Inoue, Keishi Nishio, Yasuo Kogo





Advanced aerospace heat resistant materials without containing Si is required for applying at above 1800°C

using CALPHAD to fabricated carbon fiber reinforced refractory high-entropy ceramic matrix composites as a novel candidate for Si-free heat resistant material



Results and Discussion

Observation and analyses of C/RHECs after oxidation Observation and analyses of as-infiltrated material Epoxy (b) and (c) Nb C/RHECs 5 mm Nb 3 mm Oxidized Unoxidized Arai, Y., Saito, M., Samizo, A., Inoue, R., Nishio, K., Kogo, Y. (2021). Ceram. Int. 300 µm Ti and Zr rich 1mm 5 + $O_2(g) \rightarrow 2|7Nb_2O_5(s, I) + 4|7CO(g)$ Ti and Zr rich carbide -350 eg 4

100 µm

