

Topic: Diffusion Studies on systems related to Superalloys and Bond Coat

Nickel-based superalloys are the most complicated alloy system designed to outperform in high-temperature environments. It retains the property near melting point because of the unique precipitates (γ') presence. These alloys mainly consist of two phases (γ – Ni solid solution and γ' – Ordered precipitates). Pt-modified nickel aluminides are coated over the superalloys for oxidation protection. My interest is to breakdown this complex system to understand the diffusion phenomenon and atomic mobility. This can be achieved by designing strategic experiments in multicomponent diffusion measurements. The Pseudo-Binary (PB), Pseudo-Ternary (PT) diffusion couple methods and the new hybrid approach tracer-interdiffusion couple methods are followed.

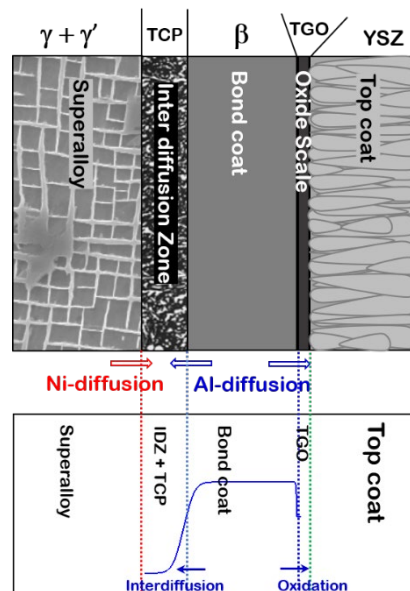


Figure.1. Schematic representation of the bond coat - superalloy system