Advanced Materials Research Group
project summary

Project Title	Mechanical and chemical behaviour of thermally sprayed CoNiCrAlY bond coats
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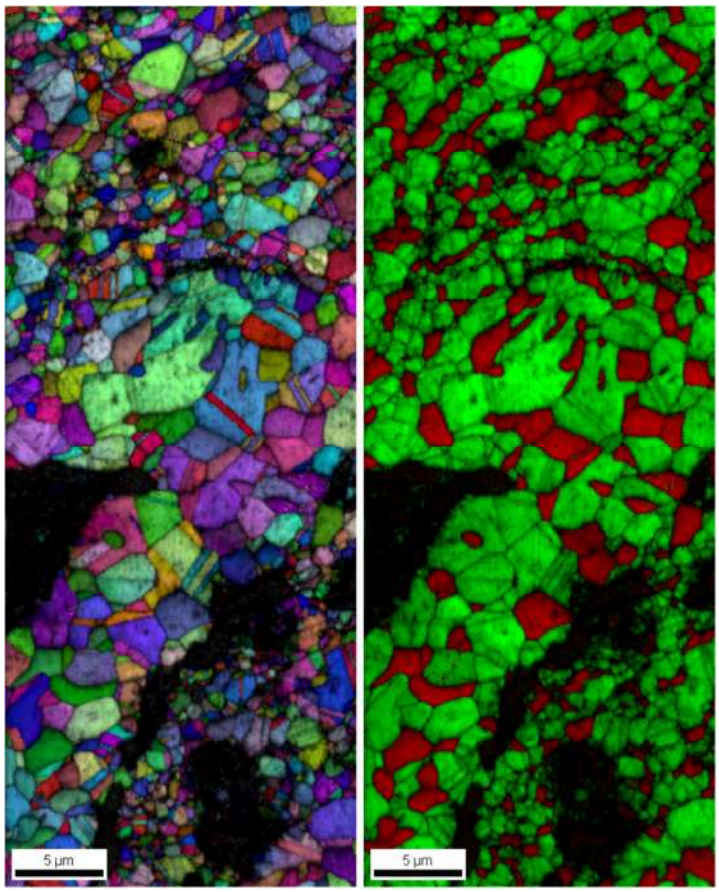
Project Summary	My research emphasises on thermal barrier coatings (TBCs) for turbine blades. My work focuses on the mechanical and chemical behaviour of the MCrAlY bond coat in thermal barrier coatings. Part of the research is to investigate the high temperature creep behaviour of such bond coats using small punch creep test. Material failure and stress analysis have been carried out to investigate the corresponding creep failure mechanisms of the MCrAlY coatings. The other part of my project falls in the chemical behaviour of MCrAlYs under oxidation. A numerical diffusion model has been established to simulate the phase evolutions at high temperatures and predict lifetimes. Fig. 1 Crack propagation in the MCrAlY coating during creep at 750 °C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