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The CEFRACOR
28 rue Saint Dominique, 75007 Paris, France

Mumbai, 25/08/2025

Subject: Ref: Job Application for a Postdoctoral position in High Temperature Corrosion

Dear Cefracor Team,

Greetings! I hope this cover letter finds you well! I am writing this job application in search of a postdoctoral position in 'High Temperature Corrosion' at any of the research labs/Institutes associated with the Cefracor. I am a PhD scholar working primarily on 'High-temperature oxidation of Austenitic stainless steels & Ni-base superalloys' at the Indian Institute of Technology Bombay, and I am about to defend my PhD thesis in a few weeks.

I have been working with High-temperature materials meant for clean-energy generation for the past seven years, and my research interests are focused on material degradation at high temperatures. I completed my Master's (by Research) degree with a focus on the Fire-side corrosion behaviour of thermal spray coatings deposited on Ferritic-martensitic steel. During my doctoral stint at the Indian Institute of Technology Bombay, I have worked on the High-pressure steam oxidation behaviour of Heat-resistant Austenitic stainless steels and Ni-base superalloys meant for the next generation Advanced Ultra-Supercritical (AUSC) coal-fired power plants.

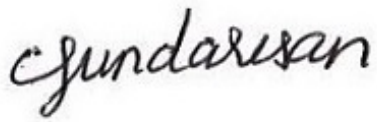
My Master's work involved generating NiCr, NiAl and MCrAlY (M = Ni and/or Co) bond coats on T91 steel using APS and Detonation spraying techniques and evaluating their hot corrosion resistance in an alkali iron trisulphate deposit. The influence of coating method, microstructure and composition on the hot corrosion behaviour was studied, and the coatings were ranked for their corrosion resistance accordingly. My doctoral thesis concerns the 'Investigation into the oxidation behaviour of Heat-resistant Austenitic Stainless steels 304HCu and Sanicro 25 in Advanced Ultra-Supercritical (AUSC) steam'. It focuses on the long-term exposure and study of the oxidation behaviour of those alloys in a carefully controlled, high-temperature, high-pressure steam environment (650-710 deg. C, 31 MPa). The thesis sheds light on various aspects, including the early oxidation mechanism, the evolution of oxide scales over time and the effect of surface treatment on the oxidation behaviour. The results from this work provide insights for developing materials resistant to extreme working conditions relevant to next-generation power plants. I am well-versed with Aqueous corrosion as well and various characterisation techniques such as TEM, SEM, EBSD, Nano-indentation analysis, XRD and APT, and I am proficient in scientific writing and dissemination of research work. I have led and co-authored several research publications in reputed corrosion journals and have presented our research work in international scientific conferences such as the 'Gordon Research Conference', 'EuroCorr' and the 'International Corrosion Congress'.

As someone who has worked on the oxidation behaviour of high-temperature materials and thermal spray coatings till now, I would also like to work on other material properties such as creep, fatigue, etc. Additionally, I am excited to work on materials systems other than steels and superalloys, such as Refractories and ceramics. I envision myself becoming a researcher in academia who is well-versed in the full spectrum of high-temperature materials and their functionalities.

I am looking forward to working on projects related to the high-temperature corrosion of materials and Aqueous corrosion as well. I would be grateful if I get to know about potential postdoctoral job offers through the CEFRACOR.

I have also attached my CV, and I look forward to hearing from you!

Kind regards



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