Postdoctoral Fellow Position Available –
Extreme Behavior of Metal-Ceramic Composite Materials

The Position
Dr. James Hogan and Dr. André McDonald of the Department of Mechanical Engineering at the University of Alberta, in collaboration with industry partners and the Province of Alberta, invite applications and queries for a Postdoctoral Fellow position in the area of Extreme Behavior of Metal-Ceramic Composite Materials, focusing on Experimental Mechanics and Computational Mechanics approaches to studying material behavior. This position will be open to candidates who possess a PhD degree in Mechanical Engineering. Applicants with expertise and experience in computational mechanics, experimental mechanics, wear and fatigue behavior of materials, fracture mechanics, materials science, particulate-reinforced composite materials, or thermal spraying are highly encouraged to apply. The successful candidate will be required to work independently and must communicate well in English. Some national and international travel may be required. The successful candidate will be financially supported. This position is available to Canadian citizens, permanent residents of Canada, and international applicants. It is expected that the successful candidate will take up the position in September 2019. Interested candidates may wish to visit https://sites.ualberta.ca/~jdhogan/index.html to learn more about the Centre for Design of Advanced Materials and https://sites.ualberta.ca/~andre2/ to learn more about the Advanced Heat Transfer and Surface Technologies Laboratory.

The Project
The proposed research project seeks to develop the necessary fundamental understanding of wear failure of ceramic-reinforced metal matrix composite coatings and overlays in extreme temperature and loading environments, recognizing the importance of microstructure in these behaviors. It is expected that knowledge obtained will provide guidance to academic and industry partners on how to design single- or multi-metal ceramic materials with increased wear and dynamic performance. The selected candidate will make fundamental contributions to experimental mechanics and damage modelling, building on previous experimental and modelling work from our groups.

Training and Professional Development Opportunity
The training of research assistants and fellows is paramount. The selected candidate will receive formal training in the following practical areas: i) surface preparation, ii) high-quality coating and overlay fabrication, iii) use of ultra-high-speed cameras and mechanical measurement systems, and iv) safety. The successful candidate will have opportunities to participate in national and international conferences, and collaborate with at least one national or international academic or industrial expert on the project.
**Application Procedure**

Candidates are asked to submit complete applications, which include: i) a cover letter; ii) a detailed curriculum vitae highlighting career achievements, areas of research, a list of publications, awards and honours, and a list of three professional references; iii) a statement of research interest, expertise, and experience (maximum 2 pages); and iv) three samples of the candidate's most significant scholarly work.

The review of applications will begin immediately, and applications will be accepted until the position has been filled.

Interested candidates should send their completed application packages and direct queries to **Dr. James Hogan** by email at jdhogan@ualberta.ca or to **Dr. André McDonald** by email at andre.mcdonald@ualberta.ca.