



University of São Paulo

Polytechnic School of Engineering

Postdoctoral Research Opportunity in Computational and Probabilistic Fracture Mechanics

The Fracture Mechanics and Structural Integrity Research Laboratory (NAMEF) of the Polytechnic School of Engineering at the University of São Paulo (EPUSP) has an opening for a 2-year postdoctoral fellow (which may be extended to an additional year depending on funding availability) with a strong background in fracture mechanics and computational modeling of materials starting from February/2025. Of particular interest are candidates with experience in computational fracture mechanics applied to probabilistic approaches to fracture in structural materials, including fracture toughness testing, although strong candidates with demonstrated expertise in close research areas relevant to structural integrity assessment procedures will also be considered.

The research conducted at NAMEF focuses on the multidisciplinary structural engineering aspects of fracture and fatigue in load-bearing materials with emphasis on structural integrity and defect assessment procedures for critical structural components. Current R&D programs conducted at NAMEF focus on the development of robust procedures for integrity analyses of in-service structural components for the oil and gas industry, including high pressure pipelines and submarine risers in deep water offshore fields in the Brazilian pre-salt area. The postdoctoral researcher will work specifically on development of fracture toughness correlations for tensile armors of submarine flexible pipes based on local approaches to fracture (LAF) coupled to nonlinear 3D finite element analysis of refined models for fracture specimens.

The University of São Paulo is the largest university in South America and ranks as the top university in Latin America according to the Times Higher Education (THE) Latin America University Rankings. São Paulo is the largest city in Brazil with a vibrant multicultural environment. The Fracture Mechanics and Structural Integrity Group (NAMEF) has also a long history of significant and relevant scientific and technological publications in the field of fracture mechanics and structural integrity assessment procedures for the nuclear and oil and gas sectors, among others.

Eligible candidates must have received their Ph.D. degree within the past 5 years in Mechanical Engineering or related areas. Excellent command in spoken and written English is highly desirable. Interested candidates should submit an application with a detailed CV to

Prof. Claudio Ruggieri
Fracture Mechanics and Structural Integrity Research Laboratory
Polytechnic School of Engineering, University of São Paulo
São Paulo 05508-030, Brazil
claudio.ruggieri@usp.br