POOYAN CHANGIZIAN

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PROFESSIONAL SUMMARY

Materials engineer scientist, offering experience and deep knowledge in the fields of mechanical/physical metallurgy, property-microstructure relationship, materials characterization, thermomechanical processing, fracture mechanics, and failure analysis. Possessing over 5 years of experience on leading several projects regarding CANDU reactor life extension with direct industrial collaboration. Outstanding communication, problem solving, adopting to new environment and team work skills.

TECHNICAL SKILLS

- Professional experience in project management and leadership through working in several research groups
- Deep knowledge on CANDU reactor structure, radiation damage physics, and aging mechanisms of fuel channel components
- Solid understanding of mechanical behavior of materials, deformation mechanisms, fracture mechanics and mechanical property-microstructure relationship
- Expert on materials characterization methods, Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), X-ray Diffraction and Focused Ion Beam (FIB)
- Advanced writing and speaking skills, evidenced by publishing papers, attending international conferences and teaching experience

Computer Skills: Solidworks, Abaqus, Microscopy Image analysis, MS office

EDUCATION

Ph.D. in Materials Engineering, Queen's University, Kingston, ON Jan 2014 - May 2018

Master of Science in Materials Engineering, University of Tehran, Iran Aug 2010- Sep 2013

Bachelor of Science in Materials Engineering, Ferdowsi University, Iran Aug 2006- May 2010

WORK EXPERIENCE

Post-doctoral fellow (May 2018-present) - Queen's University and Kinectrics Inc.
Technical Scope: Failure analysis, Mechanical test, Ion irradiation, Microstructure characterization, Project management, Mechanical Design
Key achievements:

- Received governmental fellowship for two years project with an industrial collaborator (Kinectrics Inc.).
- Collaborated with nuclear industries including, CNL and Kinectrics Inc on CANDU reactor life extension projects.
- Worked directly with Kinectrics Inc.on failure analysis of CANDU Spacer Material and the effects of radiation damage.
- Managed and leaded 3 research projects related to the effect of radiation damage on degradation mechanisms of CANDU reactor components involving nano-indentation properties of pure Ni after radiation, emulation the microstructure of neutron irradiated X-750 spacer, fracture mechanism in irradiated X-750 spacer.
- Supervised the work efforts of a team of engineers to design and manufacturing new experimental facilities at Reactor Materials Testing Laboratory.

- Designed experimental research plans, performed hands on experiments, presented and published scientific papers.

Materials Engineer Researcher (Jan 2014 - May 2018) - Nuclear Materials Research Group, Queen's University
Technical Scope: Materials characterization, Nano-mechanical test, Project design, Experiment design, Report to Industry
Key achievements:

- Made collaboration with national labs and research groups including, Argonne National Lab, Nuclear Sciences and Material Sciences Lab (JANNUS), Michigan Nuclear Engineering Department.
- Prepared industrial reports from the results of hands on experiment on mechanical properties test and microscopy characterization on irradiated and un-irradiated materials.
- Developed numerical models to describe the mechanical property changes as a functional of radiation-induced microstructure changes.
- Developed advanced experimental plans and technical solutions related to my Ph.D. thesis.

AWARDS AND HONORS

- International Ontario Graduate Scholarship (OGS) 2016-2017 goes to one of top 6 graduate students in Queens University.
- The Duncan and Urlla Carmichael Fellowship for first class standing grad student 2017.
- First runner-up of the student poster competition of the 12th and 13th CANDU Owners Group Fuel Channel Seminar, May 2017 and 2019.
- The best graduate poster in 2017 American Society of Metals (ASM) poster competition, Queen's University.
- Queen's University Graduate Award for four years of Ph.D. program.
- Queen's University International Tuition Award for four years of Ph.D. program.
- The 3rd most cited article published since 2010 in Materials Design Journal.

PUBLICATIONS AND CONFERENCES

- P. Changizian, Z. Yao, C. Lu, F. Long, M. R. Daymon, Journal of Nuclear Materials 515 (2019) 1-13
- P Changizian, A. Brooks, Z. Yao, Metall. Mater. Trans. A 49 (2018), 498-514.
- P. Changizian, C. Lu, Z. Yao, Philosophical Magazine Letter, 97 (2017) 101-109.
- P. Changizian, H.K. Zhang, Z. Yao, Philosophical Magazine 95 (2015), 3933-3949.
- P. Changizian, Z. Yao, C. Lu, 37th CNS Conference, June 2017, Niagara Falls, ON, Canada.
- P. Changizian, H. K. Zhang, Z. Yao, 17th International Conference of Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors, August 9th to 13th, 2015, Ottawa, Ontario, Canada.