

广东石油化工学院硕士研究生导师简介

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专业领域：材料与化工-材料工程

研究方向：1. 功能材料；2. 金属材料

主讲课程：本科生课程：新能源材料、硅材料制备技术；研究生课程：金属物理

主要荣誉：曾在日本的大阪大学(Osaka University)和加拿大的麦吉尔大学(McGill University)和萨斯喀切温大学(University of Saskatchewan)工作十五年。主要研究核反应堆的结构材料和管道钢。一些研究成果已被大篇幅地编入出版的书籍，是相关领域的代表性工作。是London Journals Press、Open Journal of Metal (OJMetal) 和SciFed Journal of Metallurgical Science的编辑；Metals 刊物核材料(锆合金)方向的Guest Editor；加拿大核学会(Canadian Nuclear Society) 和加拿大矿业、冶金及石油协会(Canadian Institute of Mining, Metallurgy and Petroleum)成员。

出版著作及代表性论文：（著作、论文分别填写，代表作限填 10 篇）

1. **W. Qin***, J.L. Liang, Z.Q. Cheng, M.H. Shi, D. Gu, T.L. Li, W.L. Zhu, J.A. Szpunar, Threshold stress of hydride reorientation in zirconium alloy nuclear fuel cladding tubes: a theoretical determination, *Journal of Nuclear Materials*, 2022, 563: 153659.
2. **W. Qin***, A. Thomas, Z.Q. Cheng, D. Gu, T.L. Li, W.L. Zhu, J.A. Szpunar, Key factors affecting hydrogen trapping at the inclusions in steels: A combined study using microprint technique and theoretical modeling, *Corrosion Science*, 2022, 200: 110239.
3. K.M.M. Rahman, **W. Qin***, J.A. Szpunar, J. Kozinski, M. Song, N. Zhu, New insight into the role of inclusions in hydrogen-induced degradation of fracture toughness: three-dimensional imaging and modeling, *Philosophical Magazine*, 2021, 101: 976.
4. **W. Qin***, A.K. Chauhan, J.A. Szpunar, Helium bubble nucleation at grain boundaries and its influence on intergranular fracture, *Philosophical Magazine*, 2019, 99: 679.
5. **W. Qin***, J.A. Szpunar, N.A.P. Kiran Kumar, J. Kozinski, Microstructural criteria for abrupt ductile-to-brittle transition induced by δ -hydrides in zirconium alloys, *Acta Materialia*, 2014, 81: 219.
6. **W. Qin***, J.A. Szpunar, J. Kozinski, Hydride-induced degradation of hoop ductility in the textured zirconium-alloy tubes: a theoretical analysis, *Acta Materialia*, 2012, 60: 4845.
7. **W. Qin***, N.A.P. Kiran Kumar, J.A. Szpunar, J. Kozinski, Intergranular δ -hydride nucleation and orientation in zirconium alloys, *Acta Materialia*, 2011, 59: 7010.



8. **W. Qin***, J.A. Szpunar, Y. Umakoshi, Electron or ion irradiation-induced phase-change mechanism between amorphous and crystalline state, *Acta Materialia*, 2011, 59: 2221.
9. **W. Qin***, T. Nagase, Y. Umakoshi, Electron irradiation-induced nanocrystallization of amorphous Fe₈₅B₁₅ alloy: Evidence for athermal nature, *Acta Materialia*, 2009, 57: 1300.
10. **W. Qin***, C. Nam, H.L. Li, J.A. Szpunar, Tetragonal phase stability in ZrO₂ film formed on zirconium alloys and its effects on corrosion resistance, *Acta Materialia*, 2007, 55: 1695.

近 5 年主持承担科研项目及经费：（已结题、正承担的课题应分别注明）

1. 广东省自然科学基金（编号：2022A1515010919），核用事故容错锆合金包壳管表面附近氢化物的形成和取向机制及理论建模，经费：10 万，2022-2024，正承担。