NAME: Qiuchen Wu
NATIONALITY: China
DOB: 08/15/1993
MOBILE: +86 15571203409
EMAIL: wuqiuchen@hust.edu.cn

EDUCATIONAL BACKGROUND

- **09/2015-Now Master Degree of Microelectronics and Solid State Electronics**, School of Optical and electronic information (SOEI), Huazhong University of Science & Technology (HUST), Wuhan, China **GPA: 3.91/4.0**
- **09/2011-06/2015 Bachelor Degree of Science in Electronic Science and Technology**, SOEI, HUST, Wuhan, China **GPA: 3.57/4.0**

PUBLICATIONS

- **Qiuchen Wu**, Mengmeng Hao, Ziqing Zeng, Xiaochuan Wang, Wenzhong Lv, Guifen Fan*. "*Nonlinear dielectric effect of Fe_2O_3-doped PMS–PZT piezoelectric ceramics for high-power applications*" (Ceramics International, Volume 43, Issue 14, 1 October 2017, Pages 10866-10872, DOI: 10.1016/j.ceramint.2017.05.119).
- **Qiuchen Wu**, Jinyi Zhou, Shanlong Jin, Wanglei Zhou, Guifen Fan*, Xiaochuan Wang. "*Study on high-power PMS-PZT piezoelectric ceramics prepared by molten salt method and its strong field properties*" (Journal of Inner Mongolia University of Science and Technology, Vol. 35, No.4, December 2016, Pages 365-369, DOI: 10.16559/j.cnki.2095-2295.2016.04.014).
- Kai Wang, Guifen Fan*, Shanlong Jin, **Qiuchen Wu**, Ziqing Zeng, Wenzhong Lv, Chenhui Li. "*Effect of CaO-SiO_2-MgO on microwave and withstand voltage properties of alumina ceramics*" (Journal of Inner Mongolia University of Science and Technology, Vol. 35, No.4, December 2016, Pages 356-359, DOI: 10.16559/j.cnki.2095-2295.2016.04.012).
- Guifen Fan, Ziqing Zeng, Shanlong Jin, **Qiuchen Wu**, Wenzhong Lv, Xiaochuan Wang*. "*High field dielectric property and piezoelectric response in PMS-PZT piezoelectric ceramics modified with $BiFeO_3$*", FERROELECTRICS, Vol 520, 2017, accepted for publication.

PATENT

- "A kind of piezoceramic material applied to underwater acoustic transducers and its preparation method", PRC PAT. 201710452782.6. Guifen Fan, **Qiuchen Wu**, Wenzhong Lv, Xiaochuan Wang, Wen Lei, Ziqing Zeng. under review.

RESEARCH EXPERIENCES

- **09/2015-Now Group leader, the Fundamental Research Funds for the Central Universities of China** *Research on microstructure and high-field effect of high-power piezoelectric ceramics used in underwater acoustic transducers (No. 2015JCTD114),* Key Lab of Functional Materials for Electronic Information, MOE, HUST, Wuhan, China. **Advisor:** Prof. Wenzhong Lv, Assoc. Prof. Guifen Fan, Assoc. Prof. Xiaohong Wang and Assoc. Prof. Wen Lei

  Purpose and uniqueness: Design and fabricate a kind of high-power piezoceramic material with high

performance which meets the demands of underwater acoustic transducers

- Prepared PMS-PZT piezoceramic superfine powder using molten salt method
- Fabricated PMS-PZT piezoelectric ceramics with homogeneous composition and controlled grain size
- Used Rietveld structure refinement to study the ion substitutuion of A-site and B-site in perovskites
- Utilized three main mechanisms (① Control the internal bias field by deferent defect doping; ② Adjust the types of ferroelectric domain by altering lattice symmetry; ③ Regulate the density of domain walls by changing grain sizes) to study the variation of high-field performance of high-power piezoelectric ceramics and explored the internal mechanism of inhibition of domain wall motion under high electric field
- Decreased the dielectric loss as well as the nonlinear effect to increase the devices' working electric field strength and improve the working stability
- Studied the effect of O_2 and N_2/H_2 sintering or annealing process on the microstructure, valence of elements, and high-power characteristics
- Three papers about this project have been accepted by Ceramics International, Ferroelectrics, and Journal of Inner Mongolia University of Science and Technology, respectively
- One patent about this project has been submitted to State Intellectual Property Office of the P.R.C

- **09/2015-Now Research assistant, the National Science and Technology Major Project 02 Project** (2013ZX02104－001－002), *Researches on the Microwave Dielectric Properties and Breakdown Strength of Alumina Ceramics*, Key Lab of Functional Materials for Electronic Information, MOE, HUST, Wuhan, China. **Advisor:** Prof. Wenzhong Lv, Assoc. Prof. Guifen Fan, and Assoc. Prof. Xiaohong Wang

  Purpose and uniqueness: Fabricate Al_2O_3-based ceramics with excellent microwave dielectric properties and achieve best breakdown strength by adding CaO-SiO_2-MgO, ZrO_2 and other sintering aids

  - Studied the sintering characteristics and electrical properties of alumina ceramics by adjusting the ratio of the oxide content in CaO-SiO_2-MgO sintering aids
  - Discussed the effect of the incorporation of ZrO_2 on the grain size, the relative density, the breakdown strength properties, and the microwave dielectric properties, especially the dielectric constant, the quality factor, and the temperature coefficient of resonant frequency
  - Explored the influence of the pressure and the holding time of the cold isostatic pressing process on the performance of the ceramic samples
  - Improved the final performance of alumina ceramics by controlling the dumping atmosphere and the heating rate
  - One paper about this project has been accepted by Journal of Inner Mongolia University of Science and Technology

- **02/2016-06/2016 Teaching assistant, Undergraduate Core Curriculum**, *Physics of Electronic Materials*, SOEI, HUST, Wuhan, China. **Advisor:** Assoc. Prof. Guifen Fan

  Purpose and uniqueness: Assist professor to finish the tasks of teaching and administrating

  - Prepared all the things of classes, including files, machines, and internet to make sure that teaching went well
  - Kept teaching materials and things for daily use
  - Guided students to study well and helped them to solve some basic problems

- Helped professor to correct homework, and communicate with students well

- **03/2014-06/2014 Group Leader**, *Molecular dynamics simulation of lithium batteries using V_2C nanomaterials*, Center for Computational Materials Science and Computer Measurement Simulation, SOEI, HUST, Wuhan, China. **Advisor:** Prof. Jianjun Jiang, and Assoc. Prof. Ling Miao

  Purpose and uniqueness: Use Materials Studio and SIESTA software to investigate the electrode properties and electrochemical properties of V_2C nanomaterials for Li-ion batteries based on the first principles

  - Assigned work to team members, assessed project progress and thus adjusted workload of everyone to finish the project in time
  - Learnt how to use Materials Studio to establish the three-dimensional molecular model and did the SIESTA calculation

TECHNICAL SKILLS

- **Fabrication & Simulation:** Conventional Solid-State Reaction Method, Molten Salt Method, High-Energy Ball Milling, Cold Isostatic Pressing, Atmosphere Sintering, Sol-Gel Process, Aqueous Tape Casting Process; GSAS, FULLPROF, JANA, MDI Jade, X'Pert HighScore, CasaXPS, XPSPEAK, VESTA, Material Studio, SIESTA, AutoCAD, ANSYS, HFSS
- **Characterization:** X-ray diffraction analysis (XRD), Atomic Force Microscopy (AFM), Scanning Electron Microscopy (SEM), X-ray photoelectron spectroscopy (XPS), Agilent 4192A precision impedance analyzer, ferroelectric testing system, quasi-static d_{33} meter, high electric field dielectric loss testing system, Transmission Electron Microscope (TEM)

SCHOLARSHIPS

- 10/2016 Merit Postgraduate, HUST
- 09/2016 First class Academic Scholarship, SOEI, HUST (¥10,000)
- 09/2015 First class Academic Scholarship, SOEI, HUST (¥10,000)

SCORES

- GRE (07/13/2017), 321 (Verbal 153, Quantitative 168, Writing 3.5)
- TOEFL IBT (08/26/2017), 90 (Reading 24, Listening 22, Speaking 19, Writing 25)

HOBBLES

Singing, the game of Go, Chinese calligraphy, Table tennis, Running