Curriculum Vitae

Jinsheng Fan

(+1)-765-479-9208 *Nationality: People's Republic of China*
fan247@purdue.edu *2243 US HIGHWAY 52 W APT 626-C, West Lafayette, IN, USA, 47906-5313*

EDUCATION

Ph.D. Degree in Engineering Technology (in progress) **Aug 2018 – Now**
Purdue University *West Lafayette, USA*

- A recipient of the Ross Fellowship from Purdue University.
- Research on organic piezoelectric materials.
  Advisor: Assistant Professor Dr. Robert Nawrocki.

M. Eng. Degree in Materials Engineering **Sep 2014 – Jan 2017**
University of Science and Technology Beijing (USTB) *Beijing, China*

- Average Score: 89.1/100 – Rank: Top 10%
- TOEFL: Total 90 (Reading 27, Listening 21, Speaking 20, Writing 22)
- GRE: Total 314
- Completed thesis on *Thermal control release of microcapsule-type curing agent and the curing process of epoxy resin*. Advisor: Professor Dr. Yudong Zheng.

B. Eng. Degree in Material Processing and Control **Sep 2010 – Jun 2014**
University of Science and Technology Beijing(USTB) *Beijing, China*

- Overall GPA: 3.51/4 – Rank: Top 10% Major GPA: 3.70/4 – Rank: 7/104
- Completed thesis on *Investigation on self-flux solder for electronics assembly*.
  Advisor: Professor Dr. Xingke Zhao.

RESEARCH INTERESTS

- Physically flexible organic electronics with the application in biopotential monitoring.
- The preparation methods, structure and properties of polymer composites.
- The creation of environmentally-friendly novel biomaterials with better mechanical properties.
- The use of differential scanning calorimetry in quantitative kinetic and thermodynamic studies solid reactions and phase transformations in the heating polymer.

- Organic Electronics Materials
- Piezoelectric Materials
- Anode membrane
- Computational Material Science
- Biomaterials
- Microcapsules

RELEVANT COURSES

- Biomedical Materials
- Polymer Physics and Chemistry
- Advanced Organic Synthesis
- Structure-Property Relationships of Engineering Polymers
- Mechanical Properties and Behaviors of Polymers
- Materials Chemistry
- Electrical Engineering Technology
- Mathematics Model and Computer Control

RESEARCH EXPERIENCE

Purdue University **West Lafayette, USA**
Advisor: Assistant Professor Dr. Robert Nawrocki

Research Co-leader **Aug 2018 – Now**

Study on the preparation and properties of organic electronics materials

- Develop new types of electronics in the form of imperceptibly thin, bio-compatible, and unobtrusive, skin-laminated patch, capable of monitoring various biopotentials, such glucose, temperature, blood pressure and heart rate.
- Investigate the electrical (impedance, capacitance, etc.) and mechanical (stretching, flexing, etc.) properties of organic (bio) electronics devices (capacitors, diodes, transistors, etc.) and systems (electronics laminated on flexible substrates, including artificial and biological skins).

University of Science and Technology Beijing **Beijing, China**

Advisor: Professor YUDONG Zheng

Research Co-leader **Feb 2016 – Jun 2016**

Studied on the preparation and properties of microcapsule curing agent

- Explored the preparation method of the microcapsule-type curing agent through the solvent evaporation method via oil-in-water emulsion.
- Investigated the thermal control release behavior of microcapsule-type curing agent in the matrix of epoxy resin and calculated the release amount of curing agent during the process of heating.
- Studied on the curing process with the addition of microcapsule-type curing agent via DSC.

Research Assistant

Preparation of bio-based biodegradable polyurethanes and the regulation of their structures and properties **May 2015 – Oct 2016**

- Assisted in the design and preparation of a novel biodegradable polyurethane based on PHBV and PEG for the improvement of mechanical properties and hemocompatibility for biomedical applications.
- Studied on the chemical structure, thermal properties, mechanical properties, in vitro degradation, hemocompatibility and cytotoxicity of the PHBV-based polyurethane films.

Preparation of selective catalytic conductive hydrogel electrode membrane in the surface layer glucose cell for implantable low power devices application **Nov 2014 – Oct 2015**

- Assisted in the design and preparation of a conductive hydrogel anode membrane based on PtNPs, MWCNTs, and BC.
- Built a single compartment antibiotic glucose fuel cell with the utilization of PtNPs/MWCNTs/BC membrane as the anode and a platinum sheet as the cathode.

The structural design and electrical performance control of electro-conductive MWCNT/PVA composite hydrogels and the bioelectrical responses **Jun 2014 – Oct 2014**

- Assisted in exploring the potential of a novel conjugate from BC and Ibuprofen for application in drug delivery systems by the ester bond breaking.
- Studied on the preparation method of hybrid hydrogels of bacterial cellulose nanofiber and sodium alginate for application in drug delivery systems.
- Investigation on the stimulus-responsive swelling properties and its stimulus-responsive drug release behaviors of the hydrogels.

Research Leader **Sep 2014 – Dec 2016**

Thermal control release of microcapsule-type curing agent and the curing process of epoxy resin

- Explored the external factors in the formation process of microcapsules based on solvent evaporation method via oil-in-water emulsion.

- Studied on the released amount of the core materials from microcapsules and the effect of melting behaviors on the variation of size distribution during the heating process.
- Studied on quantitative kinetics and thermodynamics of reactions and phase transformations in the curing process of epoxy resin with the aid of differential scanning calorimetry.

Advisor: Professor XINGKE Zhao

Assistant to Professor XINGKE **Feb 2014 – Jun 2014**

Investigation on self-flux solder for electronics assembly

- Assisted in the preparation of Sn-Ag-Cu solder with different concentration of phosphorous.
- Studied on the enthalpy change during the melting process of self-flux alloy solder on the copper matrix based on the thermodynamic analysis.
- Calculated the surface tension of solder liquids containing surfactants based on Dorsey method.
- Studied on the self-flux mechanism of Sn-Ag-Cu solder with the addition of phosphorous.

Advisor: Professor YOUNG Jiang

Assistant to Professor YOUNG **Mar 2012 – May 2013**

The Effect of Doping on Magnetic Properties of ZnO-Based Diluted Magnetic Semiconductors

- Assisted in the process of grown pure ZnO and $Zn_{0.96}Na_{0.04}O$ thin films on quartz substrates and powder by sol-gel and spin coating technology.
- Studied on the magnetic mechanism of non-magnetic element doped ZnO and tried to improve the magnetic properties accordingly.

PUBLICATIONS

- **Fan J**, Zheng Y*, Xie Y, Sun Y, Luan Y, Jiang W, Wang C, Liu S, Liu X. Effect of solvent evaporation technique on the characteristics of curing agent microcapsules and the curing process [J]. Composites Science and Technology, 2017, 138: 80-90.（IF: 3.897）
- Wang C, Zheng Y*, Sun Y, **Fan J**, Qin Q, Zhao Z. A novel biodegradable Polyurethane based on poly (3-hydroxybutyrate-co-3-hydroxyvalerate) and poly(ethylene glycol) as promising biomaterials with the improvement of mechanical property and hemocompatibility [J]. Polymer Chemistry, 2016. 6: 6120-6132.（IF: 5.687）
- Shi X, Zheng Y*, Wang G, Lin Q, **Fan J**. pH- and electro-response characteristics of bacterial cellulose nanofiber/sodium alginate hybrid hydrogels for dual controlled drug delivery [J]. Rsc Advances, 2014, 4(87): 47056-47065.（IF: 3.289）
- Liu S, Zheng Y*, Sun Y, Su L, Yue L, Wang Y, Feng J, **Fan J**. An oxygen tolerance conductive hydrogel anode membrane for use in a potentially implantable glucose fuel cell [J]. RSC Advances, 2016, 6: 112971-112980.（IF: 3.289）

RESEARCH GRANTS

- City level Second Prize in the China Undergraduate Mathematical Contest in Modeling (Sep 2013)
- Excellent Graduation Thesis (Dec 2016)

EXPERIMENTAL SKILLS

- Basic usage of research tools: TG, DSC, FTIR, SEM, Hardness tester (Rockwell, Vickers, micro Vickers, nano).
- Basic usage of device: Vacuum evaporation machine, Heat-treating furnaces, Computer real-time data collection system.

COMPUTER & LANGUAGE SKILLS

- Auto CAD, Inventor, 3D MAX, Photoshop, Matlab, Origin
- TOFEL: 90 (Reading 27, Listening 21, Speaking 20, Writing 22)
- GRE: 314

- C++
- Matlab
- Microsoft Office
- OrignPro 2016
- Auto CAD
- Photoshop
- 3Ds Max
- Solid Works
- Lab View 2017

HONORS, AWARDS & SCHOLARSHIPS

- A recipient of the Ross Fellowship from Purdue University (2018).
- Third prize in the Cradle Cup for USTB Students Academically Technology Competition (2014).
- Second prize in the Cradle Cup for USTB Students Entrepreneur Competition (2015).

First Academic Scholarship **2014 – 2016**

- Top award for graduate students in USTB.

People First Scholarship **2012 – 2013**

- Top national award for undergraduate students in China.

People Third Scholarship **2011 – 2012**

- Top national award for undergraduate students in China.

- Merit Student Award (2015)
- People's Scholarship (2011 – 2013)
- Student Cadre Award (2012 – 2013)
- Excellent Graduate Award (2016 & 2014)

EXTRACURRICULAR ACTIVITIES

Propaganda Dept. of the Students' Union of USTB **Sep 2013 – Jun 2014**
Secretary *Beijing, China*

- Acted as photographer, cameraman and designer.
- Coordinated various sports competition among colleges and universities. (Nov 2013).

Public Relation Dept. of the Graduate Student Union in USTB **Sep 2014 – Jun 2015**
Volunteer Team Leader *Beijing, China*

- Provided programs of activity and coordinated various Dept. of the union in the process of activity.
- Managed the team to search for sponsors to get financial support for various activities.

History museum in USTB **Oct 2011 – Apr 2013**
English Narrator *Beijing, China*

- Merit volunteer of The 60th Anniversary of USTB.

REFERENCES

Assistant Professor Dr. Robert Nawrocki
School of Engineering Technology (SOET)
Purdue University
Knoy 133, 401 N. Grant St., West Lafayette, Indiana, USA, 47907
E-mail: rnawroc@purdue.edu