

# YULIAN (LENNA) YAO

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## EDUCATION

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**Shanghai Jiao Tong University** B.E. in Materials Science and Engineering 09/2012 - Present  
Overall GPA: 3.75/4.0(88.15/100) Ranking: 4/133

## PUBLICATIONS

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[1] Zhao, B.\*, Yao, Y.\*, Yang, K., et al. ‘**Mercaptopropionic acid-capped Mn<sup>2+</sup>:ZnSe/ZnO quantum dots with both downconversion and upconversion emissions for bioimaging applications**’ (\*These authors contributed equally to this work) *Nanoscale*, 2014, 6, 12345-12349.

[2] Zhao, B., Yao, Y., Gao, M., et al. ‘**Doped quantum dot@silica nanocomposites for white light-emitting diodes**’ *Nanoscale*, 2015, 7, 17231-17236. (Back cover)

## RESEARCH EXPERIENCES

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Research in **Institute of Composite Materials** (Supervisor: **Wanwan LI**)

**Quantum Dots Encoded Microspheres for Suspension Arrays** 09/2013 - Present

- Prepared over 30 batches of quantum dots encoded polymer microspheres (magnetic and non-magnetic) of different emission peaks(650nm-780nm), conjugated antigen/antibody for detection
- Synthesized gold nano particles of different sizes and shapes with different surface plasmon bands (SPB)
- Grew metalnanoshells on the QD barcodes surface, improved analytical sensitivity up to two order

**Mn<sup>2+</sup>:ZnSe/ZnO Quantum Dots for Bioimaging Applications** 09/2013 - 08/2014

- Designed a facile, cost-efficient hydrothermal route to synthesized MPA stabilized Mn<sup>2+</sup>:ZnSe/ZnO d-dots with strong emission at ca. 580nm
- Enhanced the photoluminescence quantum yield of Mn<sup>2+</sup>:ZnSe/ZnO quantum dots to 31%, highest reported value of Mn<sup>2+</sup>:ZnSe/ZnO quantum dots synthesized by hydrothermal route so far
- exhibited upconversion emission when excited at 800 nm attributed to a two-photon absorption process
- Marked cell nucleolus with low cytotoxicity (greater than 80% cell viability) without surface decoration

**Doped ZnSe Quantum Dot for White Light-Emitting Diodes (WLED)** 03/2015 - 09/2015

- Synthesized blue, green-yellow and red emitting doped quantum dots to construct WLED with reduced scattering and no reabsorption
- Coated silica shells onto the doped quantum dots to reduce the refractive index (RI) difference by 93%

**Glucose Oxidase-Catalyzed Growth of Gold Nanoparticles for enzyme-Linked Immunosorbent Assay (ELISA) Antibody/Antigen Detection** 09/2014 - 03/2015

- Synthesized gold nanoparticles with diameter ranging from 5nm to 160nm
- Applied gold nanoparticles to enzyme-linked immunosorbent assay to enhance detection sensitivity

## HONORS & SCHOLARSHIP(SELECTED)

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National Scholarship of China (top 2%)	2014
Academic Excellence (Type A) Scholarship of Shanghai Jiao Tong University (SJTU) (top 1%)	2014
Kwang-Hua Scholarship (Top 5%)	2013
First Prize of Shanghai Challenge Cup	2015
Three Good Student of SJTU	2014
Candidate for Pacemaker to Merit Student (top 15 out of over 30000 students)	2014
Outstanding Volunteer of Shanghai Science Shop	2013

## EXTRA-CURRICULAR ACTIVITIES(SELECTED)

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**Head of Youth Volunteer Department** *09/2012 - 09/2014*

Organized and participated in over 20 times of voluntary work: Shanghai Marathon volunteer, Shanghai Science and Technology Museum volunteer, science shop volunteer, etc

**The Challenge Cup** *03/2015 - 06/2015*

*Known as the Science and Technology Olympics for College Students*

Presented my projecttentative exploration of the properties and application of quantum dotsto experts in Nano

**Head of Liaison Department of Sports Union** *09/2013 - 09/2014*

Organized over 30 sports associations in SJTU, assisted with the Long-Distance Running Competition

## SKILLS

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Instrument: fluorospectro photometer, flow cytometry, ultraviolet-visible absorption spectrometry, SEM, TEM, HREM

Software: L<sup>A</sup>T<sub>E</sub>X, MATLAB, Abaqus

Language: TOEFL 106, GRE 159+170+3.5, French entry level