


Zhen Xiao

Postdoctoral Scholar, Molecular Imaging Program at Stanford

 Curriculum Vitae available Online

 Resume available Online

Bio

BIO

Zhen is from China and gained his Bachelor of Science at Beihang University. He pursued his next-level education in the US as he went to Brown University in 2017. At Brown, he did his PhD with Prof. Vicki Colvin to work on magnetic nanomaterials and their biomedical applications. He developed a systematic synthesis for the iron oxide nanocrystal clusters and reported the superior magnetic properties to conventional single-core nanoparticles. Working with multidisciplinary collaborators, Zhen has achieved many in vitro and in vivo studies applying these materials and demonstrated excellent cell separation efficiency, drug delivery, hyperthermia cancer treatment, and contrast agent for imaging using the clusters. Now at Stanford, Zhen joined Dr. Jianghong Rao's lab and is working on the detection and imaging of pathogens and cancers with nanomaterials, especially using magnetic particle imaging (MPI). It is Zhen's desire to push magnetic nanotechnologies for broader applications in biomedicines.

HONORS AND AWARDS

- ACS Division of Colloid and Surface Chemistry Outstanding Student Poster Award, American Chemical Society (2022)
- Philip A. Smith '26 Chemistry Fellowship, Brown University (2018)
- Shenyuan Medal, the Highest Undergraduate Honor, Beihang University (2017)
- Nano Research Paper of the Month Award, Tsinghua University Press (2016)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Guest Editor, Special Issue "Semiconductor Nanomaterials for Energy Conversion and Environmental Applications" in Crystal, MDPI (2022 - 2022)

STANFORD ADVISORS

- Jianghong Rao, Postdoctoral Faculty Sponsor

LINKS

- My Google Scholar: <https://scholar.google.com/citations?user=gJdK1kcAAAAJ&hl=en>
- LinkedIn: www.linkedin.com/in/zhen-xiao-594094157
- ORCID: <https://orcid.org/0000-0002-3740-3546>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Applying magnetic nanomaterials for bioimaging and cancer treatment

LAB AFFILIATIONS

- Jianghong Rao (6/15/2022)

Publications

PUBLICATIONS

- **Culture-Independent Multiplexed Detection of Drug-Resistant Bacteria Using Surface-Enhanced Raman Scattering.** *ACS sensors*
Dai, T., Xiao, Z., Shan, D., Moreno, A., Li, H., Prakash, M., Banaei, N., Rao, J.
2023
- **Sensitive T2 MRI Contrast Agents from the Rational Design of Iron Oxide Nanoparticle Surface Coatings** *JOURNAL OF PHYSICAL CHEMISTRY C*
Cho, M., Villanova, J., Ines, D. M., Chen, J., Lee, S., Xiao, Z., Guo, X., Dunn, J. A., Stueber, D. D., Decuzzi, P., Colvin, V. L.
2023; 127 (2): 1057-1070
- **Multifunctional Magnetic Nanoclusters Can Induce Immunogenic Cell Death and Suppress Tumor Recurrence and Metastasis.** *ACS nano*
Zhang, L., Zhang, Q., Hinojosa, D. T., Jiang, K., Pham, Q. K., Xiao, Z., Colvin, V. L., Bao, G.
2022
- **Increasing the antioxidant capacity of ceria nanoparticles with catechol-grafted poly(ethylene glycol).** *Journal of materials chemistry. B*
Hu, Y., Zhang, Q., Garcia-Rojas, D., Ling, V., Masterson, C. M., Bi, Y., Xiao, Z., Guo, X., Villanova, J., Dunn, J., Colvin, V. L.
2022
- **When function is biological: Discerning how silver nanoparticle structure dictates antimicrobial activity.** *iScience*
Zhang, Q., Hu, Y., Masterson, C. M., Jang, W., Xiao, Z., Bohloul, A., Garcia-Rojas, D., Puppala, H. L., Bennett, G., Colvin, V. L.
2022; 25 (7): 104475
- **Subsecond multichannel magnetic control of select neural circuits in freely moving flies.** *Nature materials*
Sebesta, C., Torres Hinojosa, D., Wang, B., Asfour, J., Li, Z., Duret, G., Jiang, K., Xiao, Z., Zhang, L., Zhang, Q., Colvin, V. L., Goetz, S. M., Peterchev, et al
2022
- **Synthesis and Application of Magnetic Nanocrystal Clusters** *INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH*
Xiao, Z., Zhang, L., Colvin, V. L., Zhang, Q., Bao, G.
2022; 61 (22): 7613-7625
- **Stable Aqueous Suspensions of Manganese Ferrite Clusters with Tunable Nanoscale Dimension and Composition** *JOVE-JOURNAL OF VISUALIZED EXPERIMENTS*
Effman, S., Avidan, S., Xiao, Z., Colvin, V.
2022
- **Controlled oxidation and surface modification increase heating capacity of magnetic iron oxide nanoparticles** *APPLIED PHYSICS REVIEWS*
Jiang, K., Zhang, Q., Hinojosa, D., Zhang, L., Xiao, Z., Yin, Y., Tong, S., Colvin, V. L., Bao, G.
2021; 8 (3)
- **Magnetic Nanoparticles in Biology and Medicine: Past, Present, and Future Trends** *PHARMACEUTICS*
Stueber, D. D., Villanova, J., Aponte, I., Xiao, Z., Colvin, V. L.
2021; 13 (7)
- **2D Gadolinium Oxide Nanoplates as T-1 Magnetic Resonance Imaging Contrast Agents** *ADVANCED HEALTHCARE MATERIALS*
Stinnett, G., Taheri, N., Villanova, J., Bohloul, A., Guo, X., Esposito, E. P., Xiao, Z., Stueber, D., Avendano, C., Decuzzi, P., Pautler, R. G., Colvin, V. L.
2021; 10 (11): e2001780
- **Nanoparticle-Catalyzed Green Chemistry Synthesis of Polybenzoxazole** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Shen, M., Yu, C., Guan, H., Dong, X., Harris, C., Xiao, Z., Yin, Z., Muzzio, M., Lin, H., Robinson, J. R., Colvin, V. L., Sun, S.
2021; 143 (4): 2115-2122
- **Libraries of Uniform Magnetic Multicore Nanoparticles with Tunable Dimensions for Biomedical and Photonic Applications** *ACS APPLIED MATERIALS & INTERFACES*
Xiao, Z., Zhang, Q., Guo, X., Villanova, J., Hu, Y., Kulaots, I., Garcia-Rojas, D., Guo, W., Colvin, V. L.

2020; 12 (37): 41932-41941

- **Homogeneously Dispersed Co₉S₈ Anchored on Nitrogen and Sulfur Co-Doped Carbon Derived from Soybean as Bifunctional Oxygen Electrocatalysts and Supercapacitors** *ACS APPLIED MATERIALS & INTERFACES*

Xiao, Z., Xiao, G., Shi, M., Zhu, Y.

2018; 10 (19): 16436-16448

- **Natural tea-leaf-derived, ternary-doped 3D porous carbon as a high-performance electrocatalyst for the oxygen reduction reaction** *NANO RESEARCH*

Guo, Z., Xiao, Z., Ren, G., Xiao, G., Zhu, Y., Dai, L., Jiang, L.

2016; 9 (5): 1244-1255

- **China rose-derived tri-heteroatom co-doped porous carbon as an efficient electrocatalysts for oxygen reduction reaction** *RSC ADVANCES*

Xiao, Z., Gao, X., Shi, M., Ren, G., Xiao, G., Zhu, Y., Jiang, L.

2016; 6 (89): 86401-86409