

# New Fronts in Neuroscience



Yi Zuo

Associate Professor, Molecular Cell and Developmental Biology  
Assistant Professor, Molecular Cell and Developmental Biology

## CURRENT RESEARCH

### From the core of neural circuitry to the brain protection system of glial cells

Many scientists have examined neurons and their disconnections as sole potential culprits responsible for dysfunctions in brain circuits. While continuation of such research is important, studies in other brain cells contributing to the development of neurological and psychiatric disorders remain largely unexplored. Glia are one such candidate, as they "glue" the nervous system together by providing nutrients, protections, and waste collection services to the brain. Dr. Yi Zuo, expert in neural circuitry and Associate Professor of Molecular Cell and Developmental Biology at the University of California, Santa Cruz, expands her knowledge of the neural basis for learning and memory, while pioneering a new field of research in the contribution of glia in etiology. With innovative multiple-photon microscopy for deeper brain imaging, Dr. Zuo hopes to further elucidate changes in neural circuitry and glial cells, and help improve strategies for stroke rehabilitation, learning and teaching, and other medical therapeutics and treatments.

With four postdocs and four graduate students, Dr. Zuo collaborates with engineers at UCSC to develop adaptive-optic multi-photon microscopes for deep brain imaging, and with physicists to build finer multi-array systems for *in vivo* recordings. Leveraging techniques of *in vivo* optical imaging, mouse genetics, behavioral analysis, and circuit mapping, Dr. Zuo's research program is able to examine brain wiring, also known as synaptic remodeling, and its implications for learning, memory, and neuropsychiatric disorders. Studying neuron-glia interaction in the living brain is particularly difficult due to the thinness of glial processes, which falls below the resolution...

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## AFFILIATION



University of California, Santa Cruz

## EDUCATION

- Ph.D. in Neuroscience 2002, Northwestern University
- B.S. in Biology 1998, Tsinghua University, Beijing, China

## AWARDS

- Blavatnik National Award for finalist, 2015
- Ellison Medical Foundation 2007 New Scholar, 2007
- Sloan Fellowship, 2007
- Committee on Women in Neuroscience Career Development Award, 2006

## RESEARCH AREAS

Life Science, Neurological / Cognitive

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Yi Zuo and her team at the University of California, Santa Cruz, as they develop novel microscopy to study neural basis of learning and venture into a new line of research in glial cells. Donations will help fund the annual \$250K required for any specific project, supporting personnel, animal charges, equipment service contracts, and operation. Partner with Dr. Zuo to understand the brain network, and how glia contribute to neurological disorders!