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### Nanodevices for probing neural circuits

**Abstract:** Technological advances in nanoscale materials and devices are allowing us to manipulate and measure brain activity with unprecedented precision. These new neurotechnologies thus open the door to a deeper understanding of the brain and improved methods to treat brain disorders.

In this talk, I will discuss how nanotechnologies for probing the brain of small invertebrates (*C. elegans* and *Hydra*) may inform the development of high-bandwidth human brain interfaces. I will then discuss how we might realize these high-bandwidth interfaces with flat implantable microscopes and magnetically activated materials. Together these advances in nano-neurotechnologies provide a path to better understand the brain and manipulate its activity to treat disease.

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