5 new faculty

1 Anne Churchland
2 Christopher Hammell
3 Molly Hammell

Anne Churchland, Ph.D.

Assistant Professor

Seeking knowledge about the neural correlates of cognition, Anne embarked on a path that led to CSHL via the doctoral program at UCSF and postdoctoral research in a primate lab at the University of Washington, Seattle. Last year, Tony Zador and colleagues at CSHL offered Anne the chance to test her methodology on rodents, which are far more pliable research subjects than primates. Anne came to the campus to perform preliminary experiments, but doubted they would succeed. A month later she had become a convert. "Apart from the advantages of working with rodents, I loved the atmosphere of collaboration here. In my new lab I'll be studying the circuitry underlying multimodal decision-making, in which animals — rodents — gather evidence from multiple sources, for instance, aural and visual, before making a decision."

Christopher Hammell, Ph.D.

Assistant Professor

In doctoral work at Dartmouth, Chris studied mechanisms involved in nuclear export of messenger RNA. Then, as a postdoc in Victor Ambros' lab at the University of Massachusetts, he became interested in the machinery that prepares micro RNAs to target specific genes, which they in turn regulate. Chris focused on how mutations in this machinery could perturb a given miRNA's gene-regulatory activity so as to give rise to a developmental timing defect. Using *C. elegans* and forward genetics, he continues to follow this line of inquiry, searching for defects in genes encoding miRNAs that can set in motion a chain of events culminating in human illness.

Molly Hammell, Ph.D.

Research Assistant Professor

En route to her career in biology, Molly Hammell studied nature across its full range, from the subatomic to the extragalactic. The linkage between these disparate fields and with biology is mathematics. Molly spent five years at a wet-lab bench as a research associate in genetics and genomics under Victor Ambros at U. Mass. "I wrote algorithms that would predict what genes micro RNAs targeted; then I went to the bench, made reporters for the targets, and ran experiments to see if the prediction were accurate." At CSHL Molly is applying prediction algorithms to problems in cancer research. She is Manager of the Bioinformatics Shared Resource.
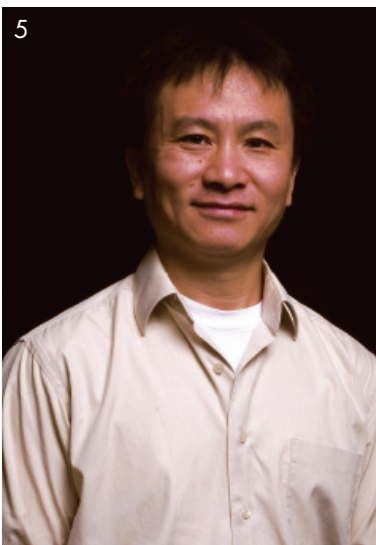
5 new faculty

Michael Schatz, Ph.D.

Assistant Professor

Mike Schatz comes to CSHL from the University of Maryland, where he developed methods for large-scale computational analysis of DNA sequencing data. Mike has become known for his pioneering use of cloud computing for genomics. That is, using many computers at once to work on problems that demand massive number-crunching power. "Cloud computing relies on a leasing model, so that you can rent out really impressive power for well-defined periods of time, rather than have to go out and buy it," he says. For the last several years Mike has helped run a large NSF cloud computing project, and intends to bring together several thousand available computing cores on the CSHL campus, during downtime periods, for faculty projects. Meantime, he continues with his own research in metagenomics — trying to understand individual genomes within a larger genomic context — and on genome assembly and validation projects.

Hongwu Zheng, Ph.D.

Assistant Professor

Hongwu Zheng comes from southwest China, where his family was relocated from the coast during the Maoist period, "in expectation of World War III!" He graduated from Sichuan University before emigrating to the U.S., where, at Boston University he earned a Ph.D. in biochemistry. Hongwu focuses on glioblastoma, a brain cancer with a poor prognosis. "We have to go down a different clinical path," he says. "We can't just keep trying the same old things again and again." He uses mice to recapitulate genetic and epigenetic aspects of the cancer, and approaches the problem from a developmental perspective. Cells have developed regulatory mechanisms over evolutionary time, to prevent aberrant proliferation. "Tumor cells devise means of self-renewing, seemingly like stem cells. We are exploring ways of restoring differentiation. If we can push tumor cells to differentiate, we might be able to stop tumor progression."

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4   Michael Schatz

5   Hongwu Zheng