

Instrumentation Initiative Task Force



Karsten Heeger, PhD (Chair)

Karsten Heeger is chair of the physics department, professor of physics, and director of the Wright Laboratory at Yale University. His research focuses on the study of neutrino oscillations and neutrino mass. Prof. Heeger received his undergraduate degree in physics from Oxford University and his Ph.D. from the University of Washington in Seattle where he worked on a model-independent measurement of the solar $8 B$ neutrino flux in the Sudbury Neutrino Observatory (SNO). Before joining the faculty at Yale University he was on the faculty at the University of Wisconsin and a Chamberlain Fellow at Lawrence Berkeley National Laboratory. His work has been recognized with numerous awards including the 2016 Breakthrough Prize in Fundamental Physics. He is a Fellow of the American Physical Society (APS). At Yale Prof. Heeger has led the renovations and transformation of the Wright Nuclear Structure Laboratory into the new Yale Wright Lab and is building a research program in nuclear, particle, and astrophysics. Prof. Heeger has served on national and international advisory committees including the High Energy Physics Advisory Panel (HEPAP), the Nuclear Science Advisory Committee (NSAC), the Natural Sciences and Engineering Research Council (NSERC), and the ASCAC LDRD Independent Review. He has been a member of the DPF Executive Committee, DNP Nominating Committee, DNP NNPSS Steering Committee, and the APS Committee on International Scientific Affairs. Prof. Heeger is Associate Editor for the European Physical Journal C and Journal of Physics G and a reviewer for Physics Review, NIM, Physics Letters, and others.



Lisa D'Angelo (Co-chair)

Lisa D'Angelo assumed the role of associate provost for research in 2019. Her responsibilities include oversight of the Science Development Fund, the Office of Postdoctoral Affairs in collaboration with the Deputy Dean of Medicine, and Science Core Facilities within the Faculty of Arts and Science and the School of Engineering and Applied Science. Lisa also serves as the Vice Provost's delegate to the University Conflict of Interest Committee. In collaboration with the Vice and Associate Provost for Research, her responsibilities include strategic planning and supporting special projects related to faculty research and facility needs. Lisa joined Yale in 2008 as Associate Director, Science Cores and served as Director, Science and Technology projects (2013-2014). She holds a B.S. in Biology from Loyola University Chicago and a Ph.D. in Biology from Wesleyan University.



Jeffrey Brock, PhD

Jeffrey Brock is the Zhao and Ji Professor of Mathematics, dean of science for the Faculty of Arts and Science, and dean of the School of Engineering & Applied Science. His research focuses on low dimensional geometry and topology, particularly hyperbolic geometry. His work William Thurston's program to understand hyperbolic 3-manifolds led to their geometric classification in joint work with R. Canary and Y. Minsky. More recently, he has worked to study renormalized volume and its gradient flow on deformation spaces. He is also interested in geometric and topological methods in analysis of large, complex data sets. He was an undergraduate at Yale, and obtained his Ph.D. at U.C. Berkeley, after which he held positions at Stanford and U. Chicago before moving to the Brown University math department, which he chaired from 2013 to 2017. In 2016 he served as founding director of Brown's data science initiative. He was a Guggenheim Fellow in 2008 and was recently elected fellow of the American Mathematical Society. He joined the Yale faculty in 2018.



Todd Constable, PhD, MD

Todd Constable is the director of MRI Research and a professor of radiology and biomedical imaging and of neurosurgery. He earned his PhD from the University of Toronto in 1990. Dr. Constable's research primarily focuses on functional magnetic resonance (MR) and understanding cognitive processes that are related to language and memory and how these processes may be altered in different disease states or with different medications. An important aspect of some of the imaging techniques he is developing is the ability to separate indirect physiologic changes associated with particular diseases or medications from those that directly impact neuronal processes. Todd has over 250 citations in research journals, holds three patents, and actively participates in the International Society of Magnetic Resonance in Medicine and the Society for Neuroscience. Todd also serves on the editorial board of Magnetic Resonance in Medicine and Brain Connectivity. Todd is the recipient of the University of Winnipeg's Distinguished Alumni Award and The Academy of Radiology Research's Distinguished Investigator Award. Todd is a fellow in the International Society of Magnetic Resonance.



Mark Johnson, PhD

Mark Johnson is the Arthur T. Kemp Professor in the Department of Chemistry at Yale University. Johnson is known for the development and exploitation of experimental methods that capture and structurally characterize transient chemical species, such as reaction intermediates, using cryogenic ion chemistry in conjunction with multiple resonance laser spectroscopy. Johnson was born in Oakland, California in 1954 and raised in the San Francisco Bay Area. He graduated from the University of California at Berkeley with a degree in chemistry and from Stanford University in 1983 with a Ph.D. in chemistry with Dick Zare. He was a postdoctoral fellow with Carl Lineberger at JILA/University of Colorado, Boulder, from 1983-1985 and joined the Yale faculty in 1985. He has served as chair of APS Division of Laser Science and the ACS Division of Physical Chemistry, and is presently co-editor of the Annual Review of Physical Chemistry.



Rajit Monohar, PhD

Rajit Manohar is the John C. Malone Professor of Electrical Engineering and professor of computer science at Yale. He received his B.S. (1994), M.S. (1995), and Ph.D. (1998) from Caltech. He has been on the Yale faculty since 2017, where his group conducts research on the design, analysis, and implementation of self-timed systems. He is the recipient of an NSF CAREER award, nine best paper awards, nine teaching awards, and was named to MIT technology review's top 35 young innovators under 35 for contributions to low power microprocessor design. His work includes the design and implementation of a number of self-timed VLSI chips including the first high-performance asynchronous microprocessor, the first microprocessor for sensor networks, the first asynchronous dataflow FPGA, the first radiation hardened SRAM-based FPGA, and the first deterministic large-scale neuromorphic architecture. Prior to Yale, he was professor of electrical and computer engineering and a Stephen H. Weiss Presidential Fellow at Cornell. He founded the Computer Systems Lab at both Cornell and Yale. He has served as the associate dean for research and graduate studies at Cornell Engineering, the associate dean for academic affairs at Cornell Tech, and the associate dean for research at Cornell Tech. He founded Achronix Semiconductor to commercialize high-performance asynchronous FPGAs.



Ben Myers, PhD

Ben joined Yale in November 2019 as the first Director of Research Cores for central campus. In this role, Ben is working to help build Yale's core facility infrastructure and coordinate activities across the University. He began his career in the semiconductor industry and has nearly 20 years of experience designing, equipping, staffing and operating research core facilities in academia. Ben holds all his degrees in Materials Science and Engineering with a BS from the University of Illinois at Urbana-Champaign and both MS and PhD degrees from Northwestern University.



James Nikkel

James received his Ph.D. in condensed matter physics from Kent State University, but has been working in particle physics ever since. He spent a number of years as a postdoc and scientist at Yale making every kind of noble liquid detector before traveling to England to lecture. He's now back at Yale largely working on detector design and development projects with a bit of simulation work thrown in for good measure. James is also the supervisor of the Advanced Prototyping Centre in Wright Lab.