



2021 SRS Board of Directors Candidate

Director-at-Large

Kun Hu, PhD



I am a physiologist currently working at Brigham & Women's Hospital (BWH), Harvard Medical School (HMS). Since 2006 I have been an active SRS member, and I have served in the SRS Research Committee between 2011-2017.

I was trained in statistical physics and obtained expertise in nonlinear dynamic analysis of complex signals during my doctoral training. During the first 5 years of my postdoctoral training, I have essentially involved in human experimental studies in two laboratories: Medical Chronobiology Program under the supervision of Dr. Steven Shea and Dr. Frank Scheer in the Division of Sleep and Circadian Disorders at BWH (sleep/circadian physiology); and SAFE (Syncope and Falls in the Elderly) Laboratory under the supervision of Dr. Vera Novak in the Division of Gerontology at Beth Israel Deaconess Medical Center (BIDMC) (for aging research). Between 2009-2011, I continued my advanced training in sleep/circadian physiology at BWH while learning about animal models involving neural lesions and gene knockouts in Dr. Clifford Saper's lab in the Department of Neurology at BIDMC and in system biology under the guidance of Prof. Walter Fontana in the Department of System Biology at Harvard University.

With my multidisciplinary training, I have been promoting the application of the concepts/methods derived from statistical physics and nonlinear dynamics in medicine during the last 16 years. To foster such translational research in sleep medicine, I established Medical Biodynamics Program (MBP) in the Division of Sleep Medicine at HMS (<https://sleep.hms.harvard.edu/research/labs-divisions/medical-biodynamics-program-mbp>). The goal of the program is to create new data analysis methods, mathematical theories, and mechanistic, experimentally-based models for

the study of neurophysiological systems. During the last 10 years, I have led several translational research projects in collaborations with scientists with diverse backgrounds (clinicians, mathematicians, and engineers) to understand the impacts of Alzheimer's disease (AD) on physiology and the role of sleep/circadian dysfunction in developing AD.

If selected, I will bring to this position my skills in interdisciplinary research, especially circadian physiology, Alzheimer's disease and nonlinear data analysis.