

Professor Igor B. Zhulin, Ph.D.

Igor B. Zhulin is a senior R&D staff member in the Computer Science and Mathematics Division, Oak Ridge National Laboratory, and associate professor in the Department of Microbiology, University of Tennessee. He is also an adjunct professor in the School of Biology, Georgia Institute of Technology. He received his Ph.D in Microbiology from St. Petersburg State University (Russia) and carried out postdoctoral research at the University of Oxford (U.K.) and Loma Linda University Medical School (California). Dr. Zhulin's research in computational genomics of signal transduction is currently supported by NIH, NSF and DOE.

Homepage: <http://web.bio.utk.edu/micro/faculty/jouline.html>

Title: Reconstructing signal transduction from raw genomic data

Abstract:

Signal transduction systems are information-processing pathways that link extracellular and intracellular signals to appropriate cellular responses. These systems control most cellular functions in living cells ranging from regulation of gene expression to fine-tuning enzymatic activity. Signal transduction proteins display an extreme sequence variability and extensive domain shuffling. Thus, their reconstruction from raw genomic data is a serious challenge. I will discuss a computational genomic approach to this problem starting from fundamental biological aspects to application of bioinformatics tools and development of an electronic knowledge environment.