Spinal Cord Circuits and Control of Locomotion: Insights from Computational Modeling

Ilya Rybak, Professor
Dept. Neurobiology & Anatomy, College of Medicine
Drexel University

DATE: Thurs., 21 February 2019
TIME: 4 p.m. to 5 p.m.
RECEPTION: 5 p.m. to 6 p.m.
LOCATION: E2-320 EITC Bldg., Ft. Garry Campus
CONTACT: Dr. Sherif Sherif
Sherif.Sherif@umanitoba.ca

ABSTRACT
In my talk, I will describe a series of computational/modeling studies performed in my group and focusing on different aspects of spinal circuit organization and neural control of locomotion, from the organization of locomotor central pattern generators (CPGs) to the control of locomotor speed and speed-dependent locomotor gait. Most of these modeling studies were performed in close collaboration with researchers and laboratories performing related experimental studies and were aimed at reproducing and explaining their experimental results.

BIO
Ilya A. Rybak received his M.S. in Electrical Engineering from Odessa Polytechnic University (Odessa, Ukraine) in 1975 and Ph.D. in Biophysics from St. Petersburg State University (St. Petersburg, Russia) in 1988. He began his scientific career in 1977 in AB Kogan Research Institute for Neurocybernetics at Rostov State University, Russia. In 1991, Dr. Rybak moved to the USA, and from 1993 to 1999 he worked for DuPont Company (Wilmington, DE). Dr. Rybak joined Drexel University in 1999 as Research Professor at the School of Biomedical Engineering. Since 2006, he is Professor at the Department of Neurobiology and Anatomy, Drexel University College of Medicine. The long-term goal of his studies is to understand the key issue of neural control of movement: how different cellular, network and systems neural mechanisms are integrated across multiple levels of organization to produce motor behavior and to adapt this behavior to various external and internal conditions. Dr. Rybak's studies focus on mathematical and computer modeling of neural circuits in the brainstem and spinal cord responsible for neural control of respiration and locomotion. These studies are performed in close collaboration with several World leading laboratories performing complementary experimental studies.

Food & drink is provided following the seminar
Everyone is welcome to attend.