

Workshop

“Dynamical Systems Theory for the Phonetic Sciences”

- Pr. Khalil Iskarous -



Pr. Khalil Iskarous (University of Southern California) will be in Potsdam in November to give a 2.5-day workshop on **Dynamical Systems Theory for the Phonetic Sciences**.

In his research, Khalil Iskarous addresses topics related to laboratory phonology, motor control, computational linguistics, and biology.

Over the past 15 years, he has worked on the dynamics of the tongue, a crucial articulator for speech production. His recent *National Science Foundation* grant investigates the behavior of the tongue during speech and swallowing in comparison to those of the moving arm of the octopus.

Timeline:

Wednesday, November 14th: from 11.00 to 16.30

Thursday, November 15th: from 9.30 to 12.00. Afternoon: free.

Friday, November 16th: from 9.30 to 16.30

Location:

The workshop will be held at the University of Potsdam, Golm Campus, Haus 29, Conference room (R. 0.25).

Registration:

There is no registration fee; however, since space is limited, registration is required. Please register before Nov 2nd with the organizer, Aude Noiray, LOLA Lab (anoiray@uni-potsdam.de).

Abstract:

Dynamical systems theory is the theoretical backbone of the phonetic sciences, and it is essential for understanding the movement of the air in acoustic and aerodynamic modes, the movement of the vocal tract structures, and the control of the phonological process that organizes speech. This tutorial starts by introducing the student to the basic vocabulary of dynamics, mostly using arithmetic, then develops some basic programming skills (assuming no previous knowledge of programming), to allow the student to simulate dynamical systems essential for understanding speech. The areas to be covered will include vowel acoustics, fricative acoustics and aerodynamics, task dynamics (including a tutorial on TADA model of inter-articulator speech coordination), oscillator theory of syllable structure, and stochastic theories of speech variability.