



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 2025

Type: **Invited Speaker** / **Conférencier(ère) invité(e)**

Experimental and Computational Studies of 1D and 2D Chimera States in Populations of Coupled Chemical Oscillators (I)

Wednesday 13 June 2018 08:00 (30 minutes)

We have studied chimera and chimera-like states in populations of photochemically coupled Belousov-Zhabotinsky (BZ) oscillators. Simple chimeras and chimera states with multiple and traveling phase clusters, phase-slip behavior, and chimera-like states with phase waves are described. Simulations with a realistic model of the discrete BZ system of populations of homogeneous and heterogeneous oscillators are compared with each other and with experimental behavior. Spiral wave chimeras as well as chimera core instabilities are studied in large arrays of photochemically coupled oscillators.

References:

- M. R. Tinsley et al., *Nature Physics* 8, 662 (2012);
- S. Nkomo et al., *Phys. Rev. Lett.* 110, 244102 (2013);
- S. Nkomo et al., *Chaos* 26, 094826 (2016);
- J. F. Totz et al., *Nature Physics*, Dec. 4, 2017.

Author: Prof. SHOWALTER, Ken (West Virginia University, USA)

Presenter: Prof. SHOWALTER, Ken (West Virginia University, USA)

Session Classification: W1-1 Pattern Formation and Statistical Mechanics of Non-Equilibrium Systems (DCMMP) | Formation de motif et mécanique statistique des systèmes hors d'équilibre (DPMCM)

Track Classification: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)