

# First Joint Meeting Brazil Italy of Mathematics Special Session: Population Dynamics and Evolution

Rio de Janeiro, August 29 - September 02, 2016

**Title:** Patchy Invasion of Stage-Structured Alien Species

**Authors:** Diomar Cristina Mistro<sup>1</sup> and Luiz Alberto Díaz Rodrigues<sup>1</sup>

<sup>1</sup>Departamento de Matemática, Universidade Federal de Santa Maria,  
Santa Maria, Brasil

**Abstract:** Understanding of spatiotemporal patterns arising in invasive species spread is necessary for successful management and control of harmful species. The conventional view of the typical invasion pattern as a continuous population travelling front has been recently challenged by both empirical and theoretical results revealing more complicated, alternative scenarios. In particular, the so-called patchy invasion has been a focus of considerable interest; however, its theoretical study was restricted to time continuous models of biological invasion. Meanwhile, many species presents discrete generations for which time discrete models seems to be more appropriate. In this talk, we will show that patchy invasion can arise in two different modelling frameworks: in space- and time-discrete system described by coupled map lattices and in space-continuous and discrete-time systems described by integrodifference equations.

This is a joint work with Elisa Regina Cara<sup>a</sup>, Sergei Petrovskii<sup>b</sup> and Natalia Petrovskaya<sup>c</sup>

<sup>a</sup> Programa de Pós-Graduação em Matemática, Universidade Federal de Santa Maria, Santa Maria, Brasil.

<sup>b</sup> Department of Mathematics, University of Leicester, Leicester, UK

<sup>c</sup> School of Mathematics, University of Birmingham, Birmingham, UK