Seventh Workshop Dynamical Systems Applied
to Biology and Natural Sciences DSABNS 2016
Évora, Portugal, February 2-5, 2016

POLYMATRIX GAMES AND REPLICATORS

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ABSTRACT

In *polymatrix games*, a population is divided in a finite number of groups, each one with a finite number of strategies. Interactions between individuals of any two groups are allowed, including the same group.
The differential equation associated to a polymatrix game, introduced recently by Alishah and Duarte in [1] and designated as *polymatrix replicator*, form a simple class of o.d.e.'s defined on prisms given by a product of simplexes, which describe the evolution of strategical behaviours within a population stratified in social groups.
This class of replicator dynamics contains well known classes of evolutionary game dynamics, such as the symmetric and asymmetric replicator equations, and some replicator equations for n-person games.
In this talk we present the basic properties of the polymatrix replicator, and some results about the dynamics and the inferences we can make about the associated polymatrix game [2].

References

[1] Hassan Najafi Alishah and Pedro Duarte (2015) *Hamiltonian evolutionary games*, Journal of Dynamics and Games, Volume **(2)** , no. 1, 33-49.

[2] Hassan Najafi Alishah, Pedro Duarte and Telmo Peixe (2015) *Conservative and Dissipative Polymatrix Replicators*, Journal of Dynamics and Games, Volume **(2)** , no. 2, 157-185.

 ISBN: 978-989-98750-2-9