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## Dynamics of doubly stochastic quadratic operators on a finite-dimensional simplex

(Review)

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## Abstract

The present paper focuses on the **dynamics** of **doubly stochastic quadratic** operators (d.s.q.o) on a finite-dimensional simplex. We prove that if a d.s.q.o. has no periodic points then the trajectory of any initial point inside the simplex is convergent. We show that if d.s.q.o. is not a permutation then it has no periodic points on the interior of the two dimensional (2D) simplex. We also show that this property fails in higher dimensions. In addition, the paper also discusses the **dynamics** classifications of extreme points of d.s.q.o. on two dimensional simplex. As such, we provide some examples of d.s.q.o. which has a property that the trajectory of any initial point tends to the center of the simplex. We also provide an example of d.s.q.o. that has infinitely many fixed points and has infinitely many invariant curves. We therefore came-up with a number of evidences. Finally, we classify the **dynamics** of extreme points of d.s.q.o. on 2D simplex. © 2016 Abdulghafor et al., published by De Gruyter Open.

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