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Prashanta Majee* (prashanta@maths.iitkgp.ernet.in), Dept. of Mathematics, Indian Institute of Technology Kharagpur, Kharagpur, WestBengal 721302, India, and **Chandal Nahak** (cnahak@maths.iitkgp.ernet.in), Dept. of Mathematics, Indian Institute of Technology Kharagpur, Kharagpur, WestBengal 721302, India. *Inertial proximal method for a system of equilibrium problems and fixed point problems.*

Equilibrium problem is an important mathematical problem which covers a vast range of problems like optimization problem, Nash equilibrium problem, saddle point problem, fixed point problem, variational inequality problem, complementarity problem, convex differential optimization and many other important problems. Several authors have introduced different types of algorithms to find a common solution of this problem along with some fixed point problems.

In this work, we introduce two proximal algorithms (one parallel and another sequential) with inertial effect for approximating a common solution of a system of equilibrium problems and fixed point problems of finite collection of nonexpansive mappings . Under suitable conditions, we establish weak convergence results for the proposed algorithms. In earlier iterative methods, the control parameters has to satisfy some strong conditions. In this work, we describe a modified method to find a common solution of the stated problems under mild conditions. Finally, we give a numerical example to demonstrate the convergence and performance of the proposed algorithms. (Received July 25, 2017)