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Gerasimos E. Ladas* (geladas@mail.uri.edu), University of Rhode Island, Department of Mathematics, Kingston, RI 02881. *Open Problems and Conjectures in Difference Equations*. Preliminary report.

We present some new results and we pose several open problems and conjectures on the global character of solutions of rational difference equations and systems of rational difference equations. We are interested in patterns of boundedness, invariants, global stability results, periodic solutions, convergence to periodic solutions and periodic trichotomies. During the last two years with my collaborators and students we have discovered 15 patterns of boundedness for rational systems in the plane which (with a few conjectures about a small number of special cases) determine the boundedness character of each of the 2401 special cases of rational systems in the plane. These patterns offer a fertile area of research in the global character of solutions of rational difference equations and systems. (Received September 04, 2011)