
Delaware State University conducts the undergraduate research program Bifurcation and Chaos in One-dimensional Discrete Dynamical Systems (BaC) that is designed to involve five underrepresented mathematics students in challenging and exciting research experience on nonlinear dynamics. BaC is composed of two components: a six-week summer MAA-SUMMA National Research Experience for Undergraduates Program, followed by research during the academic year sponsored by the NSF-funded HBCU-UP project. The project focuses on theoretical and numerical investigations of general properties of one-dimensional discrete dynamical systems with bifurcational transitions. The BaC program consists of the following main steps: theoretical description and assessment of the bifurcational transitions in one-dimensional dynamical systems described by discrete maps; numerical modelling of the bifurcational transitions and investigations of general properties of one-dimensional discrete dynamical systems by including a multistability effect; and numerical modelling of the cascades of the bifurcations and the transitions to chaos. In this presentation we will share the main features, logistics, and evaluation of BaC program as well as students’ research projects and presentations. (Received September 18, 2006)