



CoCo Seminar Series Fall 2016

Fatou-Julia Theory for Templates and Networks of Quadratic Maps

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Tuesday October 11th, 2016 4:00-5:00pm
Engineering Building H-9
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Behavior under iterations of quadratic maps has been one of the earliest and most studied topics in discrete dynamics, in both the real and complex case. However, many subtler aspects of discrete dynamics centered around the behavior of logistic maps remain largely unexplored.

For example, while iterations of a single map have been exhaustively studied, less effort has been directed towards addressing what happens (1) when the map itself evolves in time according to a symbolic template and (2) when the maps are organized as nodes in a network, and interact in a time-dependent fashion. We investigate how the traditional theory changes in these cases, illustrating how the hardwired structure (e.g., symbolic template, or respectively adjacency graph) can affect dynamics (behavior of orbits, topology of Julia set, etc.)

This is of potential interest to a variety of applications (including genetic and neural coding), since (1) investigates how an occasional or a reoccurring error in a replication or learning algorithm may affect the outcome and (2) relates to algorithms of synaptic restructuring and neural dynamics in brain networks.

Dr. Anca Radulescu is Assistant Professor of Mathematics at SUNY New Paltz. Her research interest is in dynamical systems and their applications to neuroscience.

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