

Dynamical approximations of postsingularly finite entire maps and transcendental Thurston theory

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In this talk, I will focus on entire maps of finite type, i.e., maps having finitely many singular values. For such a map, the dynamics of its singular values can tell us a lot about its global dynamics. In particular, one can start by considering the "easy" case of maps with every singular value being (pre-) periodic. These maps are called postsingularly finite, and they are of particular interest due to their strong properties and the fact that they can help understand the dynamics of maps of finite type in more general cases.

In joint work with M. Mukundan and B. Reinke, we have proved that any postsingularly finite map can be naturally approximated (in the sense of uniform convergence on compacts) by a sequence of postsingularly finite polynomials. One can call these approximations "dynamical approximations" because they preserve several dynamical properties, including dynamics on the corresponding postsingular sets.

One of the key ingredients in the proof of this result is the framework of the Thurston theory. If time permits, I will discuss the characterization problem in the transcendental Thurston theory, its relation to the discussion above, and recent results in this direction.