

DENJOY-WOLFF POINTS ON THE BIDISK

GEORGIOS TSIKALAS

Abstract: Let f denote a holomorphic self-map of the unit disk \mathbb{D} without any interior fixed points. A classical 1926 theorem of Denjoy and Wolff then asserts that the sequence of iterates

$$f^{[n]} := f \circ f \circ \cdots \circ f.$$

converges locally uniformly to a boundary fixed point of f , termed the *Denjoy-Wolff point*. The situation changes dramatically when one considers holomorphic fixed-point-free self-maps of the bidisk \mathbb{D}^2 ; the presence of large “flat” boundary components in $\partial\mathbb{D}^2$ will, in general, prevent the iterates from converging. The cluster set of the sequence of iterates in this setting was described in a 1954 paper of Hervé.

In this talk, we discuss extensions of the notion of a Denjoy-Wolff point to \mathbb{D}^2 . While this is a topic that has already been studied by several researchers, our approach introduces work of Agler, McCarthy and Young (2012) on boundary regularity on \mathbb{D}^2 into the mix. This will allow us to obtain certain refinements of Hervé’s results.

Joint work with Michael Jury.