

报告信息

崔贵珍 (深圳大学) : **On disconnected Julia sets**

We will talk about a result joint with Peng and Tan in 2011 and some recent ideas.

凡石磊 (华中师范大学): **Bohr chaoticity of topological dynamical systems**

We introduce the notion of Bohr chaoticity, which is a topological invariant, and is opposite to the property required by Sarnak's conjecture. Such a system is by definition never orthogonal to any non-trivial weight and it must be of positive entropy. But having positive entropy is not sufficient to ensure the Bohr chaoticity. We proved the Bohr chaoticity for all topological dynamical systems which have Horse-shoes, all toral affine dynamical systems of positive entropy. However, uniquely ergodic dynamical systems are not Bohr chaotic and there are many such dynamical systems of positive entropy. This is a joint work with Aihua FAN and Weixiao SHEN.

付建勋 (华中科技大学) : **On the dynamics of real quadratic harmonic polynomials with tree Julia sets**

Polynomial Julia sets with tree structure, typically Hubbard trees, play an important role in holomorphic dynamics. In this paper, we study the dynamics of $f_\alpha(z) = z^2 + \alpha\bar{z}$ for α being real and the Julia set being an infinite tree. We show that all such α form an interval $[1, 4]$, and for each $\alpha \in [1, 4]$, the ends of the tree form a Cantor set on which f_α is conjugate to a subshift of finite type, and moreover, each edge of the tree is eventually mapped to some

interval on which f_α is conjugate to a real quadratic polynomial. It follows that the topological entropy of f_α on the Julia set is equal to $\ln 2$. This makes an interesting contrast with the case that $\alpha = -2$, for which the topological entropy is $2 \ln 2$. We further show that the Fatou set is equal to the escaping set. But unlike quadratic polynomials with connected Julia sets, the Bottcher coordinate can not be extended to the whole escaping set. This leads to a non-trivial dynamics on the Fatou set. This is a joint work with Gaofei Zhang and Xiuming Zhang.

高延 (四川大学) : **A decomposition theorem of postcritical finite rational maps**

We prove that any PCF rational map with non-empty Fatou set can be eventually decomposed into two basic types: bubble rational map and Sierpinski rational map. As an application of this decomposition theorem, we find an invariant graph in the Julia set.

冀诸超 (上海数学中心) : **Classification of Fatou components in higher dimension**

A major problem in holomorphic dynamics is the classification of Fatou components. Contrary to the one-dimensional case, wandering Fatou components were recently constructed by Astorg et al for higher dimensional holomorphic maps. Their examples are polynomial skew products with a parabolic invariant line. It remains a problem whether there are wandering Fatou components when f is a polynomial skew product with an attracting invariant line (which is the more common case). In a paper in preparation with Weixiao Shen, we solve this problem when f is uni-critical: every Fatou component of f is an extension of a one-dimensional Fatou component, in particular there are no wandering Fatou components. We will also discuss the multicritical case. Finally we will list some open problems related to this classification problem.

彭文娟 (中科院) : **On the cycles of components of disconnected Julia sets**

For any integers $d \geq 3$ and $n \geq 1$, we construct a hyperbolic rational map of degree d such that it has n cycles of the connected components of its Julia set except single points and Jordan curves.

邱维元 (复旦大学) : **Escape components of McMullen maps**

It is proved that the boundaries of all escape hyperbolic components of the McMullen maps are quasicircles.

王跃飞 (深圳大学) : **SLE and Conformal Restriction Measures**

We will first talk about the Schramm Loewner equation, and then talk about its applications to conformal restriction measures. This is a joint work with Yong Han and Michel Zinsmeister.

吴云辉 (清华大学): **Optimal lower bounds for first eigenvalues of Riemann surfaces for large genus**

In this article we study the first eigenvalues of closed hyperbolic surfaces for large genus. We show that for every closed hyperbolic surface X_g of genus g ($g \geq 2$), the first eigenvalue of X_g is greater than $\frac{L_1(X_g)}{g^2}$ up to a uniform positive constant multiplication. Where $L_1(X_g)$ is the shortest length of simple closed multi-geodesics separating X_g . Moreover, we also show that this new lower bound is optimal as $g \rightarrow \infty$. This is a joint work with Yuhao Xue.

杨飞 (南京大学) : **Local connectivity of the Julia sets of holomorphic maps with bounded type Siegel disks**

We prove that a long iteration of a class of quasi-Blaschke models has certain expanding property near the unit circle. This leads us to prove the local connectivity of the Julia sets of a number of rational maps and transcendental entire functions with bounded type Siegel disks. Joint work with S. Wang, G. Zhang and Y. Zhang.

曾劲松 (广州大学) : **On the proof of Kahn-Lyubich covering Lemma**

In this talk, I will review the proof of Kahn-Lyubich covering lemma in the paper “The Quasi-Additivity Law in conformal geometry” *Annals of Mathematics*, 169(2009), 501-503 by J. Kahn and M. Lyubich.

郑建华 (清华大学): **覆盖定理以及亚纯函数逃逸集**

从 Bloch 常数说起到环域覆盖定理，将从三个角度谈覆盖定理，这些讨论都以双曲几何和亚纯函数的逃逸集的研究为背景。