Spring School: topics in complex dynamics
Universitat de Barcelona, 9-13 of May, 2005

The Escaping Set of a Transcendental Meromorphic Function
Phil Rippon

This course will describe the basic properties of the escaping set

$$I(f) = z : f^n(z) \to \infty$$

of a transcendental meromorphic function, including:

(a) the relationship between $I(f)$ and the Fatou set $F(f)$ and Julia set $J(f)$;

(b) connectedness properties of $I(f)$ and $J(f)$ in various cases;

(c) the use of $I(f)$ in the determination of various dimensions of $J(f)$.

On the moduli spaces of attracting dynamics.
Carsten Petersen

An attracting dynamics is a triple (f, U, α), where $U \subseteq \overline{C}$ is an open subset, $f : U \to \overline{C}$ is a holomorphic map and $\alpha \in U$ is an attracting periodic point for f. Denote by Λ_f the attracted basin of the orbit of α.

Two attracting dynamics (f, U, α) and (g, V, β) are

a) Möbius equivalent if there exists a Möbius transformation M with $M(U) = V$, $M(\alpha) = \beta$ and $g = M \circ f \circ M^{-1}$.

b) Hybridly equivalent if there exists a quasi conformal homeomorphism $\phi : \overline{C} \to \overline{C}$ with $\phi(U) = V$, $\phi(\alpha) = \beta$ and with $g = \phi \circ f \circ \phi^{-1}$ except possibly on a set K, whose intersection with any connected component Ω of Λ_f is compact.

The moduli space of an attracting dynamics (f, U, α) is the space of attracting dynamics hybridly equivalent to (f, U, α) modulo Möbius equivalence.

The lectures will explore the concept of an attracting dynamics and the corresponding moduli spaces ending with descriptions of open problems.

Infinitesimal Thurston Rigidity and the Fatou-Shishikura Inequality
Adam Epstein

In the first part I wil introduce Thurston's Theorem and perhaps discuss some basic applications. In this time I will introduce quadratic differentials slowly and methodically. If there is time at the end I may say something about transversality.