IRREDUCIBILITY AND HOLOMORPHIC DYNAMICS

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I will discuss open questions and recent results concerning dynamically defined algebraic sets, such as :

- the set of (c, z) such that z is a periodic point of the polynomial $f_c(z) = z^2 + c$,
- the set of parameters c such that 0 is periodic for f_c, or
- the set of parameters (a, b) such that the critical point a is periodic for the cubic polynomial $f_{a,b}(z) = z^3 - 3a^2 z + b$.

In each case, one wishes to understand whether the set is irreducible.