A magic-tree theorem, and an open question

Date Tuesday, November 11

Time 3 pm

Location 303 Mudd

Abstract:

A set of finite rooted trees that is closed downward by the homeomorphism relation, "$\preceq$" is called a tree ideal. There is a magic-tree theorem (Robertson's conjecture since the late 90's until proved recently) which asserts the following: every tree ideal $\mathcal{I}$ has a finite 'magic-tree' $T_{\mathcal{I}}$ with the property that given arbitrary two tree ideals $\mathcal{J}, \mathcal{K}$ (finite or infinite) the embedding $T_{\mathcal{J}} \preceq T_{\mathcal{K}}$ implies that $\mathcal{J} \subseteq \mathcal{K}$. In this talk, we will attempt to demystify the "magic" without getting into technical details. On the other hand, from a result of Matošek and Thomas follows that for any given trees T, T', the question "Is $T \preceq T'$?" is polynomial time decidable. We present an open question which relates the theme of this talk with the result of the two authors.