Speaker: Julia F. Knight

Title: Intrinsic computing power of structures

Abstract: Most of the time, people in computability work with subsets of ω, and in computable structure theory, we usually limit ourselves to countable structures for a computable language. If the universe is a subset of ω, we identify the structure with its atomic diagram, which we code by a subset of ω. Using *Muchnik reducibility*, we can compare the ``intrinsic'' computing power of countable structures. We write $\mathcal{A} \leq_w \mathcal{B}$ if every copy of $\mathcal{B}$ (with universe a set of natural numbers) computes a copy of $\mathcal{A}$. Like other mathematicians, people in computable structure theory are interested in uncountable structures such as $\mathcal{R}$ (the ordered field of reals). Noah Schweber extended Muchnik reducibility in a way that lets us compare the intrinsic computing power of structures of arbitrary cardinality. We write $\mathcal{A} \leq_w^* \mathcal{B}$ if, after a collapse of cardinals that makes both structures countable, every copy of $\mathcal{B}$ (with universe a set of natural numbers) computes a copy of $\mathcal{A}$. I will describe results (with various co-authors) using Schweber's notion of *generic Muchnik reducibility* to compare various structures related to $\mathcal{R}$.