

Analysis/dynamical systems Seminar

Thursday, November 20, 2014

4:00-4:50 pm in Hume 331

Functional Completions and Complex Vector Lattices

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In this talk, we demonstrate how to use convexity to identify specific elements of Archimedean vector lattices that are defined abstractly through functional calculus with more concretely defined elements. Using functional calculus, we then introduce functional completions of Archimedean vector lattices with respect to continuous, real-valued functions on \mathbb{R}^n that are positively homogeneous. Given an Archimedean vector lattice E and a continuous, positively homogeneous function h on \mathbb{R}^n , the functional completion of E with respect to h is the smallest Archimedean vector lattice in which one is able to use functional calculus with respect to h . It will also be shown that vector lattice homomorphisms and positive linear maps can often be extended to such completions. Combining all of the aforementioned concepts, we characterize Archimedean complex vector lattices in terms of functional completions. As an application, we construct the Fremlin tensor product for Archimedean complex vector lattices.