Hyperrigidity and the property of rigidity at zero

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Motivated both by the fundamental role of the Choquet boundary in classical approximation theory, and by the importance of approximation in the contemporary theory of operator algebras, Arveson introduced hyperrigidity as a form of 'noncommutative' approximation that captures many important operator-algebraic phenomena.

We show that, the concept of hyperrigidity can be expressed in many ways. We provide four main approaches to this issue. The first one is via semispectral measures in the spirit of the characterizations of spectral measures. The second approach is based on dilation theory and is written in terms of the Stone-von Neumann calculus for normal operators. The third is inspired by Brown's theorem and deals with the weak and strong convergence of sequences of subnormal (or normal) operators. Finally, the fourth approach concerns multiplicativity of UCP maps on C^*-subalgebras generated by normal elements. This is inspired by the Petz's theorem and its generalizations established first by Arveson in the finite-dimensional case and then by Brown in general.

The talk is based on joint work with Jan Stochel.

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