

ALGEBRA
SEMINAR

Jordan Decompositions of Tensors

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Abstract: The Jordan normal form for similar matrices is a powerful classification tool as it provides a test to determine which matrices are similar (in the same orbit), and whether one orbit contains another or not.

We expand on an idea of Vinberg to take a tensor space and the natural Lie algebra which acts on it and embed them into an auxiliary algebra. Viewed as endomorphisms of this algebra we associate adjoint operators to tensors. We show that the group actions on the tensor space and on the adjoint operators are consistent, which endows the tensor with a Jordan decomposition. We utilize aspects of the Jordan decomposition to study orbit separation and classification in examples that are relevant for quantum information.

My talk will contain many examples and open questions.

Wednesday, September 21, 2022, 2:30 pm
MSC E208

MATHEMATICS
EMORY UNIVERSITY