

## Distributing trace

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It is well known that, up to (unitary) similarity, the trace of a matrix can be arbitrarily distributed along its diagonal. In joint work in progress with G. MACDONALD (University of Prince Edward Island), L. MARCOUX (University of Waterloo), M. OMLADIČ (University of Ljubljana), and H. RADJAVI (University of Waterloo) we study the problem for collections of matrices. We obtain, among other things, a complete classification of  $*$ -subalgebras of  $n$ -by- $n$  matrices that are unitarily similar to a subalgebra of the subspace of matrices whose diagonal part is scalar (i.e., all diagonal entries are equal).