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Allen Herman* (aherman@math.uregina.ca), Department of Mathematics and Statistics,
University of Regina, Regina, SK , Canada. *Schur indices of the rational adjacency algebras of
coherent configurations.*

Let (X, S) be a finite coherent configuration. We will examine the structure of the simple components of the semisimple rational adjacency algebra $\mathbb{Q}S$. When (X, S) is a commutative association scheme, the possibilities for these simple components are limited by the cyclotomic eigenvalue conjecture. When (X, S) is noncommutative, the simple components are matrices over division rings. The centers of these division rings are fields of values of irreducible characters. Whether or not the centers of these division rings lie in cyclotomic extensions of \mathbb{Q} is an open question. The dimension of these division algebras is determined by their Schur indices. Algorithms for calculating the Schur indices occurring for finite groups have recently been implemented in GAP and Magma, but the main ingredients for these algorithms are not available for coherent configurations. Nevertheless, there are several situations where the calculation of a Schur index for a coherent configuration can be reduced to the calculation of a Schur index for a finite group, and we will survey some of these situations. (Received February 26, 2013)