Segre's regularity bound for fat point schemes

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Abstract. Motivated by questions in interpolation theory and on linear systems of rational varieties, one is interested in upper bounds for the Castelnuovo-Mumford regularity of arbitrary subschemes of fat points. An optimal upper bound, named after Segre, was conjectured by Trung and, independently, by Fatabbi and Lorenzini. It is shown that this conjecture is true. Furthermore, a generalized regularity bound is established that improves the Segre bound in some cases. Among the arguments is a new partition result for matroids.