1064-20-142 **Kari Ragnarsson*** (`kragnars@math.depaul.edu`), 2320 N Kenmore Avenue, Chicago, IL 60614, and **Radu Stancu**. *Saturated fusion systems as idempotents in the double Burnside ring.*

A fusion system is an abstract model for the structure of a finite group when regarded locally at a prime p. Given a finite p-group S, a fusion system on S is a category whose objects are the subgroups of S and whose morphism sets satisfy certain axioms that make them look like they are induced by (sub)conjugation in a group G having S as Sylow subgroup. These axioms are rather complicated and in this talk I will present joint work with Radu Stancu in which we obtain a simplified model by showing that fusion systems on S are in bijective correspondence with idempotents in the double Burnside ring of S that satisfy a Frobenius reciprocity relation. The idempotent corresponding to a fusion system also has implications for the representation theory of that fusion system which I will discuss if time allows. (Received September 05, 2010)