Meeting: 999, Nashville, Tennessee, SS 13A, Special Session on Semigroup Theory

999-20-97 **Stuart Margolis** (margolis@math.biu.ac.il), Israel, and **John C Meakin*** (jmeakin@math.unl.edu), Department of Mathematics, University of Nebraska, Lincoln, NE 68588. *The free idempotent-generated semigroup on a biordered set.* Preliminary report.

In 1973 Nambooripad introduced the notion of a biorderd set as a structure naturally associated with the set of idempotents of a semigroup relative to the Green's R and L relations and the natural partial order. Very interesting examples of biorderd sets arise in Putcha's work in the 1980's and 1990's on the structure of monoids of Lie type. Nambooripad proved that every regular biordered set arises as the biordered set of idempotents of a regular semigroup. In 1985 Easdown showed that Nambooripad's axioms characterize the biordered set of idempotents of arbitrary (not necessarily regular) semigroups. Subsequent work by Nambooripad, Pastijn, Easdown and other authors provided some information about the structure of the free idempotent generated semigroup on a biordered set in certain cases. We employ topological methods to associate a natural 2-complex with a biorderd set and use this to show that the maximal subgroups of the free idempotent generated semigroup on any biordered set are free groups. Additional information about the structure of the free idempotent generated semigroup on a biordered set is provided. (Received August 15, 2004)