1103-18-29 **Philip J. Scott*** (phil@site.uottawa.ca), Dept. of Mathematics and Statistics, University of Ottawa, 585 King Edward, Ottawa, ON K1N 6N5, Canada. *AF Inverse Monoids and the Structure of Countable MV-Algebras.* Preliminary report.

In the 1980's, D. Mundici connected up MV-algebras (arising from many-valued logics) with G. Elliott's program for the classification of AF C*-algebras via countable dimension groups. Independently, in the 1990's the algebraic theory of quantum effects led to development of Effect Algebras by mathematical physicists and to their connections with dimension groups. Recently, both theories have come under increasing scrutiny by category theorists.

We find a general setting, the theory of AF Inverse Monoids, in analogy to AF C*-algebras. Both MV- and Effect algebras naturally arise. Our methods are related to recent work in non-commutative Stone duality, étale topological groupoids, and pseudogroups (cf. work of Kudryavtseva, Lawson, Lenz, and Resende) as well as to classical work of Renault (groupoid approach to C*-algebras) and Bratteli.

We prove that every countable MV-algebra can be co-ordinatized, i.e. every MV-algebra is isomorphic to the lattice of principal ideals of some Boolean AF Inverse Monoid. As a concrete example, we give an explicit description of the AF inverse monoid that co-ordinatizes the MV-algebra of dyadic rationals in $[0, 1]$. It turns out to be a discrete version of the CAR algebra of a Fermi gas. (Joint work with Mark Lawson, Heriot-Watt) (Received July 30, 2014)