Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Sorting Category: F12. (T)

Schwinger's Measurement Algebra, Preons and the Lepton Masses CARL BRANNEN, Liquafaction Inc. — In the 1950s and 1960s, Julian Schwinger developed an elegant general scheme for quantum kinematics and dynamics appropriate to systems with a finite number of dynamical variables, now knowns as "Schwinger's Measurement Algebra" (SMA). The SMA has seen little use, largely because it is non relativistic in that it does not allow for particle creation. In this paper, we apply the SMA to the problem of modeling tightly bound subparticles (preons) of the leptons and quarks. We discuss the structure of the ideals of Clifford algebras and, applying this to the elementary fermions, derive a preon substructure for the quarks and leptons. We show that matrices of SMA type elements can be used to model the quarks and leptons under the assumption that the preons are of such high energy that they cannot be created in normal interactions. This gives a definition of the SMA for the composite particle in terms of the SMA of its constituents. We solve the resulting matrix equation for the quarks and leptons. We show that the mass operator for the charged leptons is related to the democratic mass matrix used in the Koide mass formula.

Carl Brannen
carl@brannenworks.com
Liquafaction Inc.

[X] Prefer Oral Session
[ ] Prefer Poster Session

Date submitted: 12 Jan 2006 Electronic form version 1.4