Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Modeling the Rotational Dynamics of Spiral Galaxies with Plasmas, Molecular Hydrogen, and Numerical Mass Distributions (Elliptical plus Disk) C.F. GALLO, Superconix Inc — The early evolution of Spiral Galaxies is modeled with electromagnetic plasma interactions which cause the initial coalescence, rotation, wispy spirals, filamentary structures and magnetic pinches to initiate clumps. As time progresses, the interstellar plasma density decreases, EM plasma effects become weaker and gravitational effects become stronger. Stars are gravitationally formed from the clumps initiated by magnetic pinches. Simultaneously, the galactic temperature decreases and molecular species form in the cooler regions. The model includes the presence of molecular hydrogen at a level similar to the densities observed by the European Space Agency's infrared space telescope, ISO. The mass distribution in the galaxy is modeled with the sum of ellipsoidal and thin disk distributions. The resulting dynamics compare favorably with the mass distribution required to produce the rotational characteristics encountered in mature Spiral Galaxies with low plasma density. (References: A. Peratt on Plasma Effects, and L. Marmet on Gravitational Models at http://www.marmet.ca/louis/galaxy/index.html).

C. F. Gallo
Superconix Inc

Date submitted: 12 Jan 2006 Electronic form version 1.4