1023-76-1107 Arup Mukherjee\* (mukherjeea@mail.montclair.edu), 1 Normal Avene, Montclair, NJ 07043, Mark Korlie (korliem@mail.montclair.edu), 1 Normal Avenue, Montclair, NJ 07043, Bogdan Nita (nitab@mail.montclair.edu), 1 Normal Avenue, Montclair, NJ 07043, John Stevens (setvensj@mail.montclair.edu), 1 Normal Avenue, Montclair, NJ 07043, and Philip Yecko (yeckop@mail.montclair.edu), 1 Normal Avenue, Montclair, NJ 07043. Analysis of a Simple sheared Ferro-fluid.

Ferrofluid's are stable colloidal suspension of nanometer scale ferromagnetic particles in a liquid carrier (usually a Newtonian fluid). In ferrofluids, the coupling of the microscopic particle rotation to the macroscopic flow vorticity causes extra viscous dissipation in the carrier fluid which leads to an enhanced effective viscosity. In this talk, we find and analyze time-independent solutions for arbitrary parallel shear flows of the Couette-Poiseuille type for ferrofluids. (Received September 25, 2006)