Abstract for invited talk at the American Society for Microbiology, May 20, 2002.

**Magnetite Formation from Thermal Decomposition of Siderite: Implications for Inorganic Magnetite Formation in Martian Meteorite ALH84001.** Richard V. Morris, SR/NASA Johnson Space Center, Houston. TX 77058

A biogenic mechanism for formation of a subpopulation magnetite in Martian meteorite ALH84001 has been suggested [McKay et al., 1996; Thomas-Keprta, et al., 2000]. We are developing experimental evidence for an alternating working hypothesis, that the subpopulation was produced inorganically by the thermal decomposition of siderite [Golden et al., 2000].