

Department of Physics & Astronomy

PHYSICS NEWS FLASH

Dr. Elbio Dagotto: Materials Sleuth

Dr. Elbio Dagotto loves a good mystery, particularly one with intricacy. This Distinguished Professor of Physics uses high-powered computing to predict the way materials will behave. He is particularly interested in colossal magnetoresistance, or CMR. This phenomenon is the natural heir to gigantic magnetoresistance, the nanotechnological wonder that can dramatically increase the memory of a hard drive without taking up much space. Dr. Dagotto, who holds a joint appointment as a Distinguished Scientist at Oak Ridge National Laboratory, recently tackled the idea of how certain materials can simultaneously undergo a number of physical interactions, such as spin and charge, and in the process generate CMR. Understanding why these materials behave in such a way might also reveal more information about high-temperature superconductors. He wrote about this work in his article titled "Complexity in Strongly Correlated Electronic Systems," which appeared in the July 8 issue of *Science*.

["Complexity in Strongly Correlated Electronic Systems"](#) (from *Science*, July 8, 2005)