

**Joint Condensed Matter  
and Center for Soft Matter and  
Biological Physics Seminar**

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**“Critical Aging Scaling Dynamics of Heisenberg Antiferromagnets”**

**Monday, May 4, 2020**

**4:00pm – 5:00pm**

**Virtual Meeting:**

Zoom Link: <https://viriniatech.zoom.us/j/93163190645>

We numerically investigate the equilibrium critical dynamics as well as non-equilibrium critical relaxation kinetics in three-dimensional Heisenberg antiferromagnets. To account for the reversible terms arising from the microscopic dynamics of the system, we employ a hybrid simulation algorithm that combines reversible spin precession with relaxational Monte Carlo updates of the spin vectors. Our method allows us to explore the early time relaxation where the system exhibits aging scaling behavior. For isotropic antiferromagnets, we verify that their dynamic scaling behavior is captured by the dynamical universality class of "model G", and validate an earlier prediction of unusual non-universality for the initial slip exponent. The phase diagram of anisotropic antiferromagnets in an external magnetic field is more complex, exhibiting two distinct critical lines that meet at a bicritical point. We study both the stationary dynamic as well as aging scaling properties of the ensuing "model C" critical line and the bicritical point. The inaccessibility of the aging scaling regime at the second "model F" critical line due to the presence of spin waves is also discussed.