



Relativistic Electrodynamics Simulation

Physics Seminar

February 1, 2012—1:30 PM, LL 121

**Presented by Andrew Flinders,
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Special relativity can be used to explain electromagnetic radiation. I will show how length contraction and the cosmic speed limit affect the electric field of an accelerating point charge. The effects of the particle's acceleration propagate outward at the speed of light. I have written a simulation that uses stored data on the particle's past motion to construct the field lines at successively greater distances. The simulation handles both smooth and sharp accelerations, accounts for additional relativistic effects, and works well in practice for speeds up to 99.9% of the speed of light. I will also demonstrate many of the different motions available to the user. The simulation is available as an applet at <http://physics.weber.edu/schroeder/software/>.

Light refreshments will be served.