

Abstract Submitted
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Computer Simulations of the Early Universe DAVID GARRISON,
University of Houston, Clear Lake — We are now able to simulate much of the
early universe from the time of the Electro-Weak Phase Transition through the
end of primordial nucleosynthesis. This simulation is performed using a General
Relativistic Magnetohydrodynamic code based on the Cactus framework. It solves
both the relativistic magnetohydrodynamic equations and Einstein's equations of
General Relativity. As a result, it can simulate: magnetogenesis, primordial gravi-
tational waves, turbulence, primordial perturbations and the role of dark matter in
the early universe. Future work will involve extrapolating this work to the present
epoch.

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