NWS05-2005-000033

Abstract for an Invited Paper
for the NWS05 Meeting of
the American Physical Society

Sizing up the Universe

NEIL CORNISH, Montana State University

The Wilkinson Microwave Anisotropy Probe (WMAP) has delivered our sharpest view yet of the early Universe. The WMAP data has ushered in a new era of precision cosmology, yielding tight constraints on the age, composition and curvature of the Universe. But the WMAP data was not without it surprises: it appears that the first stars formed much earlier than expected, and there are a number of puzzling features to be found in the large scale anisotropies. It has been suggested that these strange features are a sign that the Universe is spatially finite. We are able to test this hypothesis by looking for a tell-tale signature in the WMAP data. Turning the search around, the absence of such a signature can be used to place a lower bound on the size of the Universe. I will describe recent progress in our search for topological signatures in the WMAP data, and announce some new results.