

**EARLY EVOLUTION OF THE UNIVERSE AND  
ITS PRESENT STRUCTURE**

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In the area of cosmology there have recently been dramatic advances, both on the observational and theoretical fronts. Modern high-efficiency detectors have made possible extensive magnitude-limited redshift surveys, which have permitted observational cosmologists to construct three-dimensional maps of large regions of space. What seems to emerge is a distribution of matter in extensive, flat, but filamentary, and possibly interconnected superclusters, serving as interstices between vast voids in space. Meanwhile, theoretical ideas that were highly speculative a few years ago have begun to be taken seriously as possibly describing conditions in the very early universe. Brand new ideas, such as that of the inflationary universe, hold promise for solving outstanding observational, theoretical, and philosophical problems in cosmology. A new look at grand unified theories and concepts of supersymmetry have brought observational and theoretical cosmologists to a common meeting ground with modern particle physicists. These subjects provided the focal points for IAU Symposium No. 104, the Proceedings of which appear here.

*Cover picture:*

A computer simulation of galaxy clustering illustrates the filamentary nature of the structures that form in the "pancake" theory of galaxy formation. Surfaces of constant density are shown in an N-body model of a region about 100 Mpc in diameter. (*Courtesy, C. S. Frenk, S. D. M. White and M. Davis, University of California, Berkeley*)

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