We investigate the hot stellar component in these enhanced star formation objects using a linear programming spectral synthesis routine. A stellar library dataset was compiled from IUE observations of OBA stars in all luminosity classes; and an ultraviolet wavelength sequence was devised that includes both continuum and line features. Sets of models were run varying several parameters such as library component mix, flux weighting schemes, and internal reddening.

Several trends are present in the models. Preliminary analysis indicates that evolved starlight is an important contributor to the integrated flux; inclusion of giant and supergiant light produces consistently better fits than main sequence only models. Varying the internal color excess indicates $\langle E(B-V) \rangle \sim 0.30$ in agreement with values derived from Balmer line ratios. Several other results along with a discussion of the best fit models will be presented.

22.04 The Growth of Bar Structure in a Rapidly Rotating Fluid, J. E. TOHLINE, LSU, R. H. DURISEN, Indiana U., M. MCCOLLOUGH, Indiana U. It has been known for some time that rapidly rotating, self-gravitating fluids in axisymmetric equilibrium can be dynamically unstable toward the development of nonaxisymmetric structure. In many systems, tensor-virial analyses have indicated that the fastest growing mode is the m = 2 bar mode. We have used a three-dimensional hydrodynamic computer code to study the growth of bar structure in n=3/2 polytropes at various rotation rates. Using the self-consistent field method developed by Ostriker and Mark, we have first constructed an axisymmetric equilibrium model for analysis. We have placed this model into the 3-D hydro grid and have introduced small amplitude (<0.5%) density fluctuations of random size and phase orientation onto the axisymmetric structure. Following the evolutions for many rotations we have found that indeed a bar-like structure does grow naturally at an exponential rate in structures having rotation rates $T/|W| > 0.30$. The bar has a noticeable spiral pattern trailing off of its ends. The pattern speed and the growth rate of the "bar" that have developed spontaneously in these calculations compare very favorably with predictions from tensor-virial analyses. The information we have regarding the radial and angular structure of the bar should be useful feedback to these analyses which have to assume some shape for the eigenfunction. The results of this extensive test give us confidence in the capabilities of the 3-D hydro code. This type of code should be useful in locating dynamical instabilities in a wide variety of fluid systems, and will allow us to observe the nonlinear growth of these instabilities.

This work has been supported by NSF grants AST-8217744 and AST-8120367.

22.05 COMPUTER SIMULATIONS OF GALAXY DISTRIBUTION UP TO z=5 A. CHOKSHI, E. WRIGHT; UCLA - We use a Monte Carlo technique to distribute simulated galaxies with a power law correlation function in a field of 2' by 2' extending up to a redshift of z=5. Statistics for the various galaxy types are taken from the de Vaucouleur's catalog. Schechter's luminosity function is used. de Vaucouleur's law for ellipticals and an exponential law for disks give the luminosity distribution within a galaxy. Further, galaxies are treated as black-bodies at T=4000° K. Simulated images are made in several wavelength bands, with different angular resolutions, and using evolving as well as non-evolving luminosities for the galaxies.

22.06 Redshift Structure Of The Big Bang. K. LAKE, QUEEN'S U., C. HELLABY, QUEEN'S U.

The redshift from the big bang in the standard model is always infinite, but in inhomogeneous cosmological models infinite blueshifts are also possible. To avoid such divergent energy fluxes, we require that all realistic cosmological models must not display infinite blueshifts. We apply this requirement to the Tolman model (spherically symmetric dust), using the geometrical optics approximation, and assuming that the geodesic tangent vectors may be expanded in power series. We conclude that the bang time must be simultaneous. The stronger requirement, that only infinite redshifts from the big bang may occur, does not lead to a stronger condition on the metric. Further consequences of simultaneity are that no decaying mode fluctuations are possible, and that the only acceptable model which is homogeneous at late times is the Robertson-Walker model.

22.07 Large Scale Anisotropy in the Cosmic Background Radiation at 3 mm ,T.VILLELA (1), SSL and LBL/U.C. Berkeley and Depto. Astrofisica/INPE S.J.Campos ,SP, Brazil, G.EPSTEIN, P.LUBIN and G.SMOOT, SSL and LBL /U.C.Berkeley.

Observations of the large scale anisotropy of the background radiation have been made using a balloon borne 3 mm wavelength liquid-helium cooled radiometer. Flights have been made in both the northern and southern hemispheres. The instrument is sufficiently sensitive to detect the dipole in one gondola rotation (1 minute). The sensitivity achieved is 0.1 mK on dipole and quadrupole components with very little galactic contamination. Comparison with other measurements also yields information about the spectrum.

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22.08 Fluid Dynamics Around Black Holes: Shocks, Vortices and Instabilities. J. F. HAWLEY, U. of Ill., L. SMARR, U. of Ill.

The study of multi-dimensional accretion flows and the structure and evolution of thick pressure-supported tori around black holes is hampered by the complexity of the equations describing these systems. Our approach to these problems is to use numerical techniques to solve the partial differential equations of ideal general relativistic hydrodynamics. We have developed a 2-D accretion code to solve for the dynamic motion of perfect fluids around black holes assuming axisymmetry and neglecting the fluid's self-gravity.

We present several examples in an attempt to