observations cover the period from 1980 through 1992. We have observed similar behaviour between radio and X-ray. The changes in the flux density (22 and 43 GHz) were preceded by X-ray changes (Terrell 1986, ApJ, 300, 669).

Centaurus A was in a high flux density state at 22 GHz for the periods 1974–1976 and 1980–1982, reaching low flux density state at both radio frequencies in 1983. We have noticed that the amplitude of the variability was larger at 43 GHz than at 22 GHz since this period.

We have detected an increase of about 50% in the flux density on September 1985 at 22 GHz. This increase can be associated with an increase of activity at X-rays in the previous months.

ADVANCES IN STELLAR POPULATION SYNTHESIS

Gustavo Bruzual A.

Centro de Investigaciones de Astronomía, Venezuela

The spectral evolution of stellar populations of solar metallicity is studied by means of the isochrone synthesis algorithm introduced by Charlot & Bruzual (1991, ApJ, 367, 126) using a revised and updated library of evolutionary tracks which includes a complete treatment of the PAGB and WD phases. The library of stellar spectra used in this investigation extends from the extreme-ultraviolet to the far-infrared, covers the CMD diagram in a complete fashion, and includes observed near-infrared spectra out to 2.56 microns.

The spectrophotometric results obtained here confirm and extend the photometric predictions of the isochrone synthesis models. Models with various timescales of star formation and a Salpeter initial mass function reproduce well the spectral and photometric properties from the ultraviolet to the near-infrared of nearby galaxies of various morphological types (from young irregulars to older spirals and ellipticals).

For a complete version of this paper see Bruzual & Charlot (1993, ApJ, 405, 538).

MODELADO SEMIAUTOMATICO DE SISTEMAS DE LENTES GRAVITACIONALES

G.F. Carballo

Depto. de Astronomía, Facultad de Ciencias, Uruguay

y

E.E. Falco

Harvard-Smithsonian Center for Astrophysics, U.S.A.

El problema "estándar" en la teoría de lentes gravitacionales es invertir la ecuación de la lente, ésto es, encontrar todas las imágenes para una cierta posición dada. En la práctica los métodos analíticos no son suficientes para analizar los casos observacionales y por lo tanto se debe recurrir a métodos numéricos. El principal cuello de botella ha sido la determinación de los valores de partida para los algoritmos de cálculo de soluciones de sistemas de ecuaciones. Esto no es trivial dado que por lo general el número de imágenes no se conoce *a priori*.

Se diseña una calculadora semi-automática de sistemas de lentes gravitacionales en la cual en una primera fase se estiman los valores aproximados de los parámetros en forma gráfica e interactiva (en un ambiente X-windows) y luego dependiendo de la resolución de las imágenes (puntuales o resueltas en forma pobre o parcial) se aplican los algoritmos conocidos como Grid Search descrito en Schneider, Ehlers, & Falco (1992, Gravitational Lensing, Ch. 10, Springer-Verlag), o el algoritmo LensClean descrito por Kochanek & Narayan (1992, CfA Preprint Series No. 3400).

LIMITS ON THE PRIMORDIAL FLUCTUATION SPECTRUM

L. Nicolaci da Costa

Harvard-Smithsonian Ctr. for Astrophysics, U.S.A., and CNPq/Observatório Nacional, Brazil

We are currently completing a redshift survey of galaxies brighter than $m_{B(0)} = 15.5$, covering a declination range of $\approx 35°$ in the Southern Hemisphere. Our new observations support the picture of a void-filled Universe, with characteristic diameter of 5000 km s^{-1}. Comparison of the amplitude of the fluctuations required for the gravitational growth of these large voids and the amplitude of the Cosmic Microwave Background Radiation fluctuations measured by COBE, provides a constraint in the slope of the primordial power spectrum. From the detailed analysis carried out by Piran et al. 1992, it is found that a power spectrum $P(k) \propto k^n$ with $n \approx 1.5$ is required to explain the growth of these voids gravitationally