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and galactic abundance gradients. Extragalactic samples of SNRs offer several advantages over the galactic sample, including less ambiguous diameter estimates and less interference by interstellar extinction. We have used optical narrow-band imaging in Hα and [S II] to identify SNR candidates in several galaxies, including M33, NGC 2403, and M83. In M33, we have completed spectroscopic observations of the candidates, confirming that the candidates are indeed SNRs. The derived galactic nitrogen and oxygen abundance gradients in M33 compare well with those derived from H II region work, although the nitrogen gradient shows a 0.5 dex offset, simiilar to that found in other studies. The evolutionary trends in the sample are consistent with Sedov-Taylor expansion, although we cannot rule out a free expansion hyphothesis.

OBSERVATIONS OF SN 1987A FROM 0.15 TO 2.00 MeV

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We present data from two balloon flights in 1988 to observe SN 1987A from 0.15 to 2.00 MeV. The telescope consisted in two NaI(T1) crystals with approximately 658 cm^2 total area coupled to 3 photomultipliers each. It was mounted on a stabilized platform capable of pointing and stabilization within 2 degrees. The field of view was about 25 degrees (FWHM). The typical altitudes were 5.5 mb for the June flight and 4.5 mb for the December flight. The observations times were 6 hours and 12 hours, respectively. We place a 2 sigma upper limit for the continuum of 5.42×10^{-6} photons cm^{-2} s^{-1} keV^{-1} and 2.5×10^{-6} photons cm^{-2} s^{-1} keV^{-1}, for the first flight in the range 0.15–0.30 MeV and 0.30–1.00 MeV, respectively, and a 3 sigma upper limit of 2.1×10^{-6} photons cm^{-2} s^{-1} keV^{-1} in the range 0.15–2.00 MeV for the second flight.

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THE TRANSVERSAL MOTION OF THE LARGE MAGELLANIC CLOUD

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Liu & Lynden-Bell, in 1982, predicted the tangential motion of the Large Magellanic Cloud to be 2,0 milliarcsec (mas) or 1.5 mas per year due east, for a model of our Galaxy with or without a massive halo, respectively. Various observational programs are currently in progress devoted to measuring the motions of the Clouds with respect to faint galaxies using photographic techniques (Jones et al. 1989; Tucholke & Hiesgen 1991). Preliminary results from the Lick group (Jones et al. 1989) indicate a motion less than half that predicted by Liu & Lynden-Bell in right ascension, for a subset of red subgiant stars taken from a photometric survey by Stryker (1984) in the remote LMC halo field surrounding the cluster NGC 2257. Later on, Tucholke & Hiesgen (1991) reported a similar result based on preliminary reductions of ESO Schmidt Telescope plates of a LMC field corresponding to ESO/SRC field No. 57, due east of the LMC bar.

In January 1989, we begun an observational program using CCDs attached to the CTIO 1.5-m telescope f/13 Cassegrain focus (scale: 10.03 arcsec per mm), with the aim of measuring the tangential motion of background QSOs with respect to LMC stars. In this way, we determine the motion of the Cloud as a reflex motion.

Searching objective-prism plates taken with the CTIO Curtis-Schmidt telescope, five QSOs were discovered in the direction of the Large Magellanic Cloud, which added to the one discovered by Blanco & Heathcote (1986) make our six QSOs observing list.

Our preliminary reductions of the CCD frames and our experience in a CCD Parallax Program show that we can measure relative tangential motions (or proper motions) with a precision of 1.5 mas per year with an epoch difference of one year in the observed positions. In seven years, by early 1996, we expect to reach a precision of 0.2 mas per year.

SOME REFINEMENTS IN CHEMICAL EVOLUTION MODELS. I. A DERIVATION OF THE PRODUCTION TERM

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We have derived general equations for the production rate of any nuclide in the context of a general mass conservation equation for the chemical evolution of the Galaxy. The equation for the conservation of metals of Tinsley (1980, Fund. Cosmic Phys., 5, 287) can be recovered from our equations by the application of a number of simplifications. This approach throws some light on the approximations usually performed in the models.

This work was partially supported by UFRJ, ON/CNPq and IAU.

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