

for the central element. This introduces a novel and elegant manner of providing an antimask without additional weight and complex mechanical manipulations. This experiment, which will be flown in a high altitude balloon, has an angular resolution of $\sim 1.7^\circ$ in a $\sim 10^\circ$ (FWHM) field of view, and a sensitivity of the order of 7×10^{-5} photons $\text{cm}^{-2} \text{s}^{-1} \text{keV}^{-1}$ in the 30 to 100 keV energy range, for a residual atmosphere of 3.5 g cm^{-2} and an integration time of 10^4 seconds. The main scientific objective of the experiment is to produce new images of the highly variable source complex in the galactic center region, where new sources of X- and γ -rays were discovered and identified over the last few years. The objects 1E 1740.7-2942 (probable source of the intense and highly variable 511 keV line observed since the early 1970s), GX 1+4 (the only X-ray pulsator in the vicinity of the galactic center), and GRS 1758-258 (recently discovered by the French experiment SIGMA onboard GRANAT) are of special interest. In this paper we describe the calibration results of TIMAX, as well as results of computer simulations of the imaging system.

LARGE SOUTHERN RADIO TELESCOPE (LSRT)

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We propose to build a large aperture 21-cm radio telescope to allow for high sensitivity observations of the Southern skies. The characteristics of the innovative design of the spherical primary of the LSRT, with an area of 23 acres, will provide a wider sky coverage ($+20^\circ$ to -78°) and broader frequency range (50 MHz to 25 GHz) than its counterpart in Arecibo.

Moreover, its design will allow for the possibility of carrying out simultaneously several scientific programs. The simultaneous use of a number of receiving devices will make its performance equivalent to several telescopes of the same giant size. The LSRT will be an extremely versatile instrument serving a wide range of research interests in Radio Astronomy and Atmospheric Physics.

Potentially suitable sites have already been selected in southern Brazil. This project is being pursued as an international initiative and Latin American countries are invited to participate. Further information can be obtained upon request.

SECOND ORDER UV CONTAMINATION IN ASTRONOMICAL SPECTRA

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Observations of the planetary nebula Me2-1 are used to discuss some effects of contamination produced by the second order ultraviolet spectrum in the first order red, at approximately 6000 Å and longward. It is found that this second order contamination is produced with some instrumental set-ups, and that the contaminating lines are displaced with respect to the theoretical predictions by a certain amount, which varies slightly for different set-ups. The causes of these displacements are analyzed.

MAKING MAPS OF THE LOW-FREQUENCY SKY BRIGHTNESS

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We propose to map the southern sky as part of a program to make high quality maps of galactic emission. We will make spectral measurements of the differential and absolute sky brightness over the 400 to 1 000 MHz range first with 15 to 10 degree angular resolution and then at higher resolution. These measurements will be made with an ultra-low-noise radio receiver with seven frequency channels using a parabolic dish antenna fed by a helical feed. The antenna will be oriented at a fixed zenith angle and rotated continuously to measure the differential sky brightness very precisely. The absolute measurement will be made by an absolute calibration of the receiver with liquid-nitrogen-cooled cold load. These measurements will provide the basis for the next generation of high-precision measurements of the very low-frequency spectrum of the cosmic microwave background radiation (CMBR) and allow the reinterpretation of the low-frequency CMBR spectrum measurements made over the past decade. Recent high-frequency measurements have focused interest on the very low-frequency part of the spectrum as the only spectral region where significant distortions can exist.

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