previously thought. The boron to carbon, nitrogen to oxygen and $21 \leq Z \leq 25$ to iron ratios at energies above 2.8 GeV/nucleon are best fit with 95 percent confidence by a rigidity dependence $R^{-1.27 \pm 0.1}$. This, coupled with recent measurements of the proton spectrum to $10^{17}$ eV implies that 1 GeV/nucleon cosmic rays must be locally confined $\leq 1$ kpc in their 10$^7$ year lifetime. Further, if the source spectrum is produced by shock acceleration, the shocks must be strong (compression ratio 4 or certainly greater than 3.5).

Department of Physics and Astronomy, Univ. of Maryland

Session 44

44.12 Magnetic Flux Tubes and Local Heating in the Solar Temperature Minimum Region, S.M. FOINS*\textsuperscript{a}, R.M. DUNNET, LPSP of CNRS; W.E. BRUNER, L.W. ACTON, Lockheed - High resolution pictures of the sun have been obtained during the three flights of the Transition Region Camera (T.R.C.) in Ly α and the continua at 160 nm and 220 nm. The photometry and statistical analysis at 160 nm indicates that the solar surface radiates at the temperature minimum a substantial portion from features below 1 arcsec in size, even inside the supergranular cells. The range of the observed intensity variation of the quiet sun is much larger than that covered by the semi-empirical models A-F of Vernazza et al. (1981), and it gives constraints on the multicomponent models of fine structure and network. The statistical distribution of the parameters of these bright grains (size $= 0.5$ Mm, interdistance $= 2$ Mm, excess T from 70K to 350K) varies with the activity. The study of the spatial organization of structures at various scales allowed us: to resolve the active regions and network into such bright grains, to discover an intermediate organized structure at 8 Mm (which may be due to the 5 min oscillation), and to find evidence for the persistence of the network, with size of 15 Mm, in the active regions. The physical origin of these brightness grains in the solar atmosphere may be due to the effect of magnetic elements (with $B = 120$ G) on energy balance and radiative transfer at fine scale in the network. They may also be the trace of energy propagation (with flux $10^{8}$ erg cm$^{-2}$s$^{-1}$) and non-radiative heating in 15% of the cell chromosphere (comparing to related studies in the CaK line or the CN band). Thus the high sensitivity of the UV to the solar spatial temperature inhomogeneity provides a tool for the diagnostic and statistical studies of solar hydrodynamics, chromospheric heating and magnetism.