

X-RAY SPECTRA ANALYSIS OF 8P/TUTTLE AND 103P/HARTLEY COMETS

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ABSTRACT

Comets emit X-ray via the process of solar wind charge exchange (SWCX). Quantitative measurements of this interaction are important to have insight about the composition of comets. The present work focuses of composition of comets depending on the interaction between both Cometary nucleus and tail with solar wind. The chemical composition of Cometary nuclei was inferred from measurements of neutral and ionized gases from the coma, tail, and dust grains. Data were obtained through space telescope spectroscopy at X-ray wavelength from Chandra space telescope and by use DS9 software 7.2 for April 15th 2013, to analyze spectra that have been collected from Chandra. The results of present work showed a relation between photon count and energy for two comets, namely, 8p/Tuttle (2008) and 103p/Hartley 2. These two comets are thought to sustain their masses from Kuiper Belt, observed with Chandra X-ray observatory and ACIS-S spectrometer in the energy range (100-10000) eV. C, O, Si and P were significant elements in Hartley comet's nucleus whereas C, Si, P and Zn were found to be the main elements in Tuttle's.

KEYWORDS: 8p/Tuttle Comet, 103p/Hartley Comet, X-ray Spectra, Solar Wind