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Interstellar Medium in Nearby Early Type Galaxy NGC5576

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Abstract: This paper presents the study of Interstellar Medium in nearby early type galaxy NGC5576,The color-index maps as well as the extinction map derived from the analysis of deep CCD observations of HST data in optical passband reveals nuclear dust at the central region of galaxy. We also present results based on the systematic analysis of Chandra archive data on the X-ray bright NGC 5576 revels that hard component of X-rays are emitted from the center of galaxy. Extinction map and X-ray emission map confirms the same origin of different phases of Interstellar medium in this galaxy.

Keywords: Galaxies: Individual(NGC5576), ISM

1.Introduction: In the last few years back early-type galaxies (ETGs, both elliptical and lenticular collectively) were considered to be old, passive systems with a very little amount of or almost devoid of gas and dust. However, with the availability modern and highly sensitive, state-of-the-art observing facilities covering wide range of electromagnetic spectrum have revealed that a notable fraction of these galaxies does host a substantial amount of interstellar medium (ISM) including interstellar dust. In fact, presence of dust and its precise studies in this class of galaxies has acted as the theoretical smoking gun to mark the evolution and formation history of their host. Particularly, the diffusely distributed component of interstellar dust within galaxies has been chosen as the component to explore histories of ETGs due to its direct link