

NGC6418

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Abstract

NGC6418 is a Seyfert I Active Galactic Nucleus (AGN) that has exhibited qualities of a rare “changing-look” galaxy. Infrared and optical observations in the B and V optical bands have demonstrated that 3.6 and 4.5 μ m flux variations lag behind the optical continuum with large variations in intrinsic luminosity. This behavior could be consistent with dust obscuration from a clumpy torus or a dusty cloud traversing the line of sight. The nature of this obscuration can be further quantified through analysis of the X-ray spectrum, which will provide insight into the derived spectral shape, X-ray luminosity, and hydrogen column density. Recent observational data from the X-ray Multi-mirror Mission (XMM) Newton telescope will be reduced and extracted through open-source analysis software to develop further conclusions on NGC6418.

I. INTRODUCTION

An active galactic nucleus (AGN) is the compact center of a galaxy which typically contributes a significant portion of the galaxy’s luminosity. Under the AGN unification scheme, it is believed that AGN are actually supermassive black holes centered in the galaxy, obscured by a dusty toroidal component. Galaxies can be further classified as Seyfert I, where the spectrum is broadened by obscuration, and Seyfert II, where the spectrum lines are very narrow and prominent. Seyfert classification was further classified by Donald Osterbrock in 1981, giving rise to Seyfert 1.2, 1.5, 1.7, and 1.9.

****Changing-Look****

of this character the variations are typically attributed to an AGN flare, where the luminosity undergoes a temporary increase or decrease in luminosity, or a change in the obscuration in the line of sight. However, the coherence in the optical and IR variations imply that both flare and obscuration change may be contributing to the observations through the sublimation of dust.

III. MY WORK ****CHANGE THIS NAME****

II. NGC6418

NGC6418 is a Seyfert I galaxy that has exhibited the qualities of a rare “changing-look” AGN. Infrared and optical observations in the B and V optical bands have demonstrated that 3.6 and 4.5 μ m flux variations lag behind the optical continuum with large variations in intrinsic luminosity. These observations took data as NGC6418 shifted from a Seyfert 1.9 to a Type 1 and back within a 3 year span. In a observation