

Far-Ultraviolet Spectral Properties of the Imhotep Region throughout the *Rosetta* Mission as Observed by the Alice Spectrograph

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In September 2016, Alice, NASA's lightweight and low-power far-ultraviolet (FUV) imaging spectrograph onboard ESA's comet orbiting spacecraft *Rosetta*, completed its two-year characterization of the nucleus and coma of 67P/Churyumov-Gerasimenko (C-G), a Jupiter family comet with extreme seasons and diverse surface features and morphologies. In addition to coma studies, Alice monitored the sunlit surface of C-G across a spectral range from 700-2050 Å to establish the FUV reflectance properties of the surface. The Imhotep region on the large lobe was quite active and underwent significant surface and subsurface changes during C-G's 2015 perihelion passage. Imhotep was also one of the few regions observed repeatedly by Alice at various spacecraft distances, and thus at a range of spatial resolutions and solar phase angles throughout the mission. As such, it is the best region to study regional FUV spectral properties of the surface to search for temporal changes in spectral slope. We report here on the Alice observations of Imhotep, quantifying its photometric properties, including those at opposition during a zero-phase flyby, identifying changes in its properties indicative of new or freshly uncovered surface material in the Alice field of view, and tying the changes to activity and properties observed with other *Rosetta* instruments.