



A portrait throughout perihelion of the NH₂-rich interstellar comet 2I/Borisov

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The interstellar comet 2I/Borisov is the first interstellar object where compositional characterisation was possible throughout its entire perihelion passage. We report all 16 epochs of a comprehensive optical observation campaign with ESO VLT's integral field spectrograph MUSE, spanning 126 days from 2019 November 14 to 2020 March 19. The spatial dust emission of 2I/Borisov was predominantly smooth, with no seasonal effect. A jet-like feature was consistently visible. The gas production morphology of its coma is also smooth and similar for C₂, NH₂, and CN: symmetric around the photocentre. The production rates of these species gently declined into and beyond perihelion, until 2I's outburst and splitting event in early 2020 March. NH₂ then significantly spiked, with a only moderate rise in C₂ and CN; the dust emission also slightly reddened. 2I/Borisov is a carbon-depleted, very NH₂-rich comet relative to those yet measured in the Solar System.