



# X-RAY ASTRONOMY 2019

*Current Challenges and New Frontiers in the Next Decade*

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## Photoionisation Modelling of the Emission Line Regions in the Nucleus of NGC 7469

*Friday, 13 September 2019 19:00 (2 minutes)*

The Seyfert 1 galaxy NGC 7469 was the target of an extensive observing campaign with XMM-Newton in 2015. Analysis of the 640 ks RGS spectrum with the spectral fitting code SPEX, and the physically self-consistent photoionisation model PION, shows that the emission line region (ELR) is multi-phased, while also accounting for three warm absorber (WA) components. For the first time we characterise the emission features in the RGS spectrum in detail and derive estimates for the distances of the ELR from the central engine. These are  $\sim 2.5$  pc for the two narrow line components if we adopt an extended emission region and assume a volume filling factor of 0.1, making the ELR to be further out from the nuclear black hole than the WA. We discuss how adjusting the volume filling factor could resolve the differences with distance estimates obtained from variability arguments. Comparisons with other AGN, such as NGC 5548 and NGC 3783, for which we have also computed distances, will be presented.

### Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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