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Modelling the accretion-ejection flow around the supermassive black hole at the centre of the Milky Way

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With the recent reconstructed image of Sagittarius A (*Sgr A*) from the Event Horizon Telescope Collaboration, interest and curiosity in studying the black hole at the centre of our Galaxy has increased. The entire data collection, including the image, the spectrum and the light polarisation, has motivated and attracted many to develop and analyse different numerical models of the low luminosity accretion-ejection flow. These state-of-the-art models also help to understand how different physical parameters affect the final simulated images.

The work done so far has consisted of collecting results from these models and studying the impact of each physical parameter on the generated spectra, as well as synthetic images of the parabolic jet model.

In addition, simulation codes such as GYOTO have undergone many updates and improvements. In particular, the polarisation of the light, which will also help to better constrain our model.

Finally, the aim of the proposed Master's thesis will be to combine the parabolic jet model already studied with a thick disk model into an analytical model. This model should be able to accurately fit the observed EHT data.

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