Modelling Rotating Black Holes

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Introduction

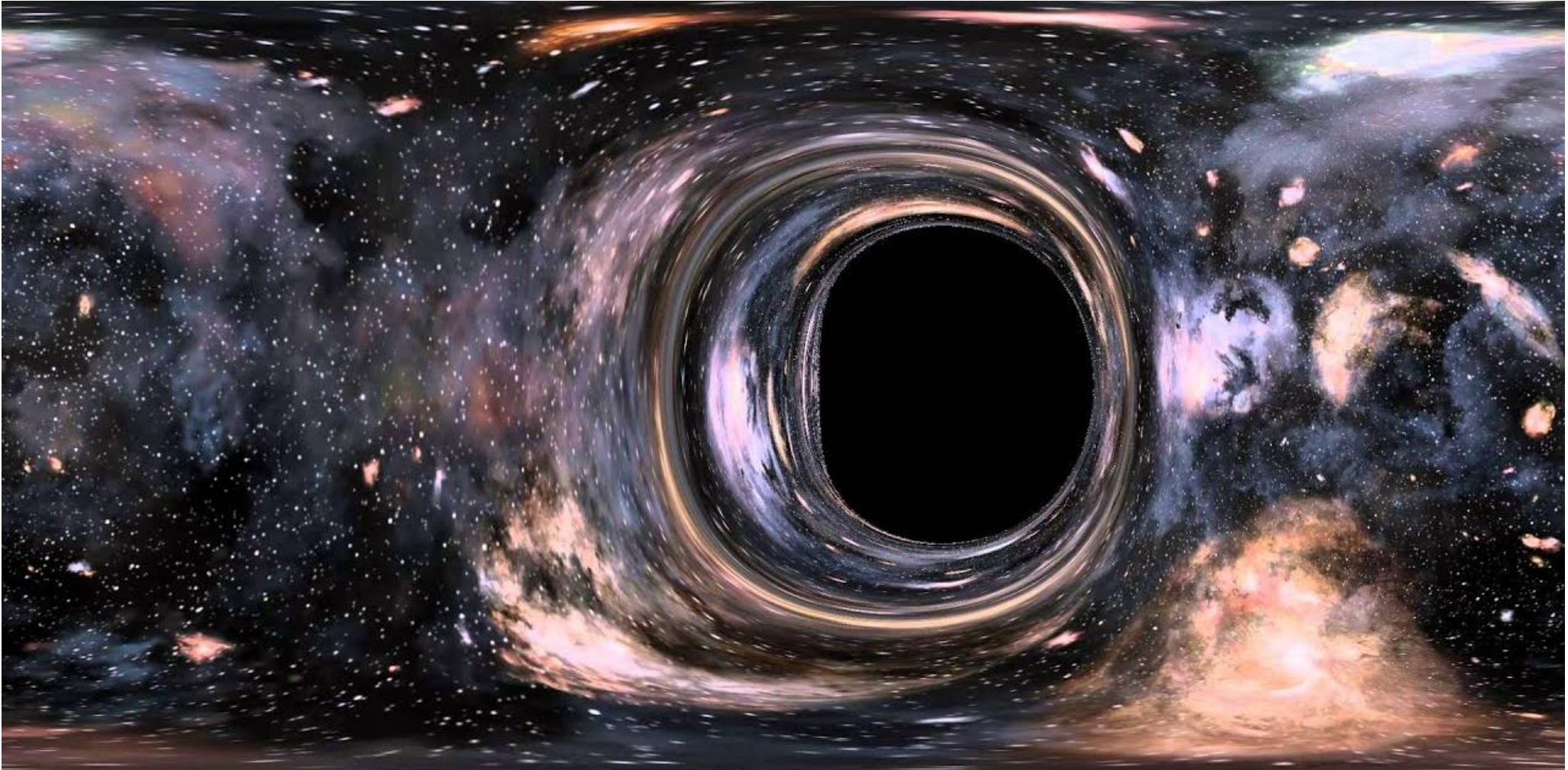|	**Charge**	**No Charge**
Spin	Kerr-Newman	Kerr
No Spin	Reissner-Nordström	Schwarzschild

Kerr Metric

The Event Horizon

The Ergoregion

$$ c^2 d\tau^2 = g_{tt} dt^2 + g_{rr} dr^2 + g_{\theta\theta} d\theta^2 + g_{\varphi\varphi} d\varphi^2 $$

Modelling Photon Orbits

Imaging the shadow

https://www.youtube.com/watch?v=qg7OP0uFJ8U&ab_channel=VadymKoliada

Future Work

- Add accretion discs

- Account for gravitational redshift

- Deal more appropriately with the ergoregion