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Electromagnetic emission from axionic clouds

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Although the existence of dark matter (DM) has been shown through various observations, nobody knows the identity of the DM. Axions were firstly introduced to solve the strong CP problem, and one of the possible candidate of DM.

Due to the super-radiance instability, axion cloud is formed around Kerr BHs.

Recently, it was suggested that once coupling to photons is considered, the laser of photons is emitted from the cloud through the coupling.

In this talk, we solve numerically the Axion-Maxwell system, and confirm the existence of laser-like emission from clouds.

Summary

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