



Axion Weak Leaks: Dark matter driven inspirals

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Axion-like particles are a prevalent feature in theories beyond the Standard Model of particle physics. These ultralight particles are compelling candidates for dark matter, effectively describing its behavior across various scales. Furthermore, their unique mass range can influence the dynamics of astrophysical black holes and give rise to exotic stellar-like structures. In this talk, we explore the potential implications of axion-like particles from the perspective of gravitational wave astronomy. We identify distinct markers associated with axion-like particles that could be detected by the upcoming Laser Interferometer Space Antenna mission, offering novel insights into their role in astrophysics.