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Probe Neutrino & Dark Matter with Cosmic Gravitational Focusing

Saturday, 13 December 2025 16:00 (30 minutes)

When a cosmic fluid, such as relic neutrinos or a minor light dark matter (DM) component, passes by the cold DM halo, it would be focused by the gravitational attraction. Then the fluid density is enhanced on the downwind side. Such cosmic gravitational focusing (CGF) effect can be used to probe the neutrino masses and the fraction of the minor light DM. With galaxy cross correlation that can be observed with the DESI galaxy survey, CGF can provide much better sensitivity than the existing observations.

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