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Probes of fundamental microphysics using intense photon beams

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Laser cavities and interferometers are approaching MW beam power, enabling probes of new microphysics and of space-time itself at mass scales well beyond the TeV scale. I will discuss several applications currently being developed, including 1) a next-generation photon-axion oscillation experiment; 2) the Holometer—an experiment to detect Planck-suppressed space-time uncertainty; and 3) possible probes of zero-point contributions to the vacuum energy.

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