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Anisotropic flow of thermal photons as a quark-gluon plasma viscometer

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As is well known, photons are a penetrating probe of the dense medium created in heavy-ion collisions. I will present state-of-the-art calculations of viscous photon emission from nuclear collisions at RHIC and LHC. Fluctuating initial density profiles are evolved with event-by-event viscous hydrodynamics. Momentum spectra of thermal photons radiated by these explosively expanding fireballs and their p_T-differential anisotropic flow coefficients $v_n(p_T)$ are computed, both with and without accounting for viscous corrections to the standard thermal emission rates at leading logarithmic order. Viscous corrections to the rates are found to have a larger effect on the v_n coefficients than the viscous suppression of hydrodynamic flow anisotropies. Since photons are found to be more sensitive to the quark-gluon plasma (QGP) shear viscosity than hadrons, their anisotropic flow coefficients v_n serve as a sensitive QGP viscometer.

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