Contribution ID: **65**   Type: **Talk**

Lattice constraints on the thermal photon rate

Monday 1 August 2016 14:00 (25 minutes)

We estimate the photon production rate from an SU(3) plasma at temperatures of about 1.1 T_c and 1.3 T_c. Lattice results for the vector current correlator at spatial momenta $k \sim (2-6)T$ are extrapolated to the continuum limit and analyzed with the help of a polynomial interpolation for the corresponding spectral function, which vanishes at zero frequency and matches to high-precision perturbative results at large invariant masses. For small invariant masses the interpolation is compared with the NLO weak-coupling result, hydrodynamics, and a holographic model. At vanishing invariant mass we extract the photon rate which for $k \sim 3T$ is found to be close to the NLO weak-coupling prediction. For $k \sim 2T$ uncertainties remain large but the photon rate is likely to fall below the NLO prediction, in accordance with the onset of a strongly interacting behaviour characteristic of the hydrodynamic regime.

Author: Dr KACZMAREK, Olaf (University of Bielefeld)

Presenter: Dr KACZMAREK, Olaf (University of Bielefeld)

Session Classification: Monday PM

Track Classification: Transport properties and probes