Heavy Ion Forum

SPEAKER: Jacopo Ghighlieri (McGill University, Canada)

TITLE: **The thermal photon rate at NLO (and a sneak peek at jets)**

DATE: Fri 01/11/2013 11:00

PLACE: TH Conference Room

ABSTRACT

We present a calculation of the rate for photon production from a weakly-coupled quark-gluon plasma at next-to-leading order. We first give an overview of the leading-order (e^2g^2) result and show how it decomposes in a region dominated by 2<->2 processes (gq->gamma q and qqbar->gamma g) and in one dominated by collinear radiation processes. At NLO (e^2g^3) both regions receive order-g corrections from momenta of order gT. We show how Euclidean and sum rule techniques can be introduced and how this technological advancement renders the calculation simpler than expected. The resulting correction is O(15-20%) for \alpha_s=0.3 and k/T<10.
Finally, we show how similar techniques can be applied to deal with highly energetic partons and jets.

Organised by: Y. Foka, U. Wiedemann