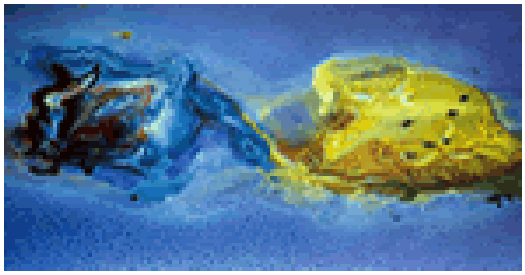

Contribution ID: **208** Type: **Invited talk**

Toward a unified description of jet and medium scales in heavy-ion collisions

Thursday 2 August 2018 16:50 (30 minutes)

Hard processes in heavy-ion collisions, in particular those involving the production of jets in the final-state, can potentially serve as well-constrained probes of a hot and dense QCD medium. At high-energies, radiation stimulated via interactions with the medium, that is subject to LPM interference effects, control the amount of energy radiated away from the jet constituents, providing a direct way to extract the relevant medium properties from experimental data. However, improving the precision of such comparisons has until recently been hampered by the lack of theoretical control regarding jet fragmentation inside the medium. Here, we report on first developments toward incorporating jet and medium scales on equal footing, focussing mostly on effects related to the iconic single-inclusive jet suppression factor. We demonstrate in particular how energy loss processes acts on multi-particle systems and discuss the logarithmic phase space for resummation. The progress in understanding these effects points toward a more complete description of in-medium jet fragmentation at leading-logarithmic order.

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Session Classification: Deconfinement

Track Classification: D: Deconfinement