

Plenarvortrag PV IX Fr 9:00 HZ 1+2
Perturbative QCD: from pp to AA collisions — ●MICHAEL
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Photons and heavy quarks are very sensitive probes of the properties of the quark-gluon plasma produced in heavy-ion collisions, e.g. of its temperature or energy density. These medium effects are usually quantified by a comparison to the production in vacuo, which must

therefore be reliably calculated in perturbative QCD. In this talk, we discuss how this can be achieved, e.g. by combining next-to-leading order calculations with parton showers, and how large the remaining scale, parton density and fragmentation function uncertainties are. We systematically reassess the thermal photon interpretation of recent ALICE data, make novel predictions for heavy-quark production in heavy-ion collisions, and propose measurements that can help to reduce the remaining theoretical uncertainties.