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## Nuclear collisions at the Future Circular Collider

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The Future Circular Collider (FCC) is the project for an electron and hadron collider in a new 80-100 km tunnel in the Geneva area. In hadron mode, a centre-of-mass energy of order 100 TeV would be achieved in pp collisions. A design study is under development to be concluded in 2018, with the target start of operation of the machine in 2035-40.

The FCC could operate with heavy ions, providing Pb-Pb and p-Pb collisions at centre-of-mass energies of 39 and 63 TeV, respectively, with monthly integrated luminosities of order 5-10/nb. We will present the updated studies on the physics opportunities with heavy ions at the FCC, emphasising the new developments since last Quark Matter, on four topics: bulk observables with focus on the new degrees of freedom (charm) that can be active; hard probes that are produced more abundantly than at the LHC and offer possibilities for new kinds of studies through boosted heavy objects (such as top quarks) or for quarkonia; small-x studies in p-Pb with the large enlargement of the kinematic  $x$ - $Q^2$  plane that the huge collision energy implies; and ultra-peripheral collisions where small-x and electro-weak studies can be performed. Implications on other fields like the physics of very high-energy cosmic rays, will also be presented.

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