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Hydrodynamics with Baryon, Strangeness, and Electric Charge conservation

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Heavy-ion collisions has 3 relevant conserved charges: baryon number (B), strangeness (S), and electric charge (Q). We have developed a new 2+1 relativistic viscous hydrodynamic code using Smoothed Particle Hydrodynamics that conserves BSQ, coupled to a 4D Lattice Quantum Chromodynamics equation of state. ICCING initial conditions that account for gluon splittings into quark anti-quark pairs provide BSQ initial charge densities relevant for the LHC and top RHIC energies. We explore new experimental observables with a specific focus on strangeness.

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