
MAGIC

Science of the Cosmos

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An overview of the MUSES cyberinfrastructure and what it can do for you

At high energy, the fundamental description of matter (Quantum Chromodynamics or QCD) is currently only directly applicable to specific regimes, leaving large portions of the QCD phase diagram uncharted, especially around the regime relevant for neutron stars. To bridge different regimes, the MUSES collaboration has built a cyberinfrastructure that provides descriptions of matter based on first-principle theories and models across the multidimensional QCD phase diagram, including thermodynamics but also observables pertinent to heavy-ion collisions, astrophysics, and more. Our online platform allows users to choose different descriptions (with different parametrizations), how these are connected, and what observables they reproduce. The platform is open for everyone, and all our code is open source.

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