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Advancing Global Collaboration through the Electron-Ion Collider (EIC)

The Electron-Ion Collider (EIC) at Brookhaven National Laboratory represents a groundbreaking opportunity to explore the fundamental structure of matter by colliding polarized electron beams with polarized hadron beams. This facility is designed to address critical questions in Quantum Chromodynamics (QCD), particularly the role of gluons in binding quarks within nucleons and nuclei. With the potential to achieve luminosities up to ~1034 cm-2s-1, the EIC will rely on cutting-edge technologies such as hadron beam cooling, spin-transparent optics, crab cavities, and advanced superconducting magnets. In addition to advancing scientific knowledge, the EIC project offers a unique opportunity for international collaboration, particularly for European institutions. By contributing to the EIC, European researchers will play a pivotal role in enhancing accelerator technology and advancing QCD research. Furthermore, this collaboration will foster innovation in accelerator technologies such as superconducting RF cavities and polarized beams dynamics, benefiting future accelerator projects worldwide. The proposed EIC Accelerator initiative aims to provide a platform for collaboration and discussion, focusing on facilitating opportunities for US and European institutions to contribute to the EIC' s construction and future upgrades. This initiative will also serve as a vital communication channel between the accelerator R&D community and EIC stakeholders, guiding the long-term development of the facility and exploring opportunities for future accelerator technologies. By taking a forward-thinking approach, the initiative will help ensure that the EIC remains at the forefront of accelerator innovation and contributes to the success of future particle colliders, serving as a testbed for new accelerator physics concepts and technologies.

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