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A NbTi Cable-in-Conduit conductor for the Medium-energy Electron-Ion Collider (MEIC) magnets and for ultimate-energy hadron colliders. DANIEL CHAVEZ, Texas AM University/ Universidad de Guanajuato, PETER MCINTYRE, Texas AM University — The Accelerator Research Lab at Texas A&M University is developing a novel approach to building superconducting dipole magnets for future colliding beam facilities. The approach uses a cable-in-conduit (CIC) superconducting cable, in which a single layer of round NbTi wires cabled are cabled onto a thin-wall metal spring tube, then sheathed in a high-strength sheath tube. The CIC conductor integrates mechanical support, cryogenic cooling and quench protection within the cable so it can be fabricated into practical windings for superconducting magnets, motors, generators, and other applications. We are currently developing an NbTi-CIC cable for the dipole magnets of the Medium-energy Electron-Ion Collider (MEIC). MEIC is a proposed colliding beam facility in which polarized beams of ions and electrons are collided at energies up to 100 GeV/u for ions and 20 GeV for electrons. It is also the basis of optimum designs for the superconducting magnets that would be required for a future ultimate-energy hadron collider. In the present work we will describe the current state of art of the CIC development and the near-term plans for building a first dipole magnet.

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