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Muon Beam Cooling and Muon Collider Prospects[1] KATSUYA YONEHARA, Fermilab, ROLLAND JOHNSON, Muons, Inc., YOROSLAV DERBENEV, Jlab — Progress in the theory and simulations of new cooling concepts and techniques has been substantial just in the last five years. New technologies that support high luminosity, high energy colliders have similarly shown great progress, especially in the development of high field magnets and RF cavities that can operate in the conditions of muon cooling channels. While these recent muon cooling developments have greatly improved the prospects for muon colliders, much work remains to achieve a complete design of a machine that could leap-frog the LHC to the next energy frontier. We report the status of muon cooling R&D, including demonstration experiments, and outline the next steps to an energy frontier lepton collider.

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