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High field muon ionization cooling channel for micron scale emittance HISHAM SAYED, ROBERT PALMER, Brookhaven National Laboratory — A muon collider with center of mass energy of 1.5 TeV can achieve luminosity of 10^{34} cm^{-2} sec^{-1} provided that the muon beam normalized transverse emittance be of the order of 25 microns. We present a complete final ionization cooling channel that can achieve such low transverse emittance requirements. The cooling is performed using liquid Hydrogen absorbers embedded in 40 T solenoids. A full simulation of the channel will be discussed including the re-accelerating and matching between stages. Additional studies of the space charge effects and absorber heating will be also covered.

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