Preliminary Study of Electron Cooling Possibility of Hadronic Beams at PETRA, K. BALEWSKI, R. BRINKMANN, K. FLOETTMANN, N. HOLTKAMP, M. SCHMITZ, G.-A. VOSS, P. WESOLOWSKI, DESY; D. YEREMIAN, SLAC - One way to increase the electron-hadron collision luminosity in HERA is the diminution of the phase-space volume of the circulating hadron beam, which could be achieved via electron cooling in the PETRA-preaccelerator. In this method hadron and electron beams with equal Lorentz factors are brought together in an interaction section of about 40 m length. The electron cooling technique at high energies in PETRA-p (7.5-40 GeV) requires electron beam energies of about some 10 MeV and beam currents of Amperes for cooling times of protons of about 10 minutes. One of the technical obstacles might be the excessive electron beam power, which motivated the investigation af a linac-based scheme to produce bunches that match the bunch length of the hadron beam. A further possibility is reuse of recirculated cold electron bunches, to which end a short-time storage ring is being considered. This paper presents preliminary studies of an electron linac as well as recycler ring at 10 MeV energy for cooling of proton and ion beams in PETRA.