

Plasma production and beam extraction from a versatile multiaperture negative ion source.

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With the ion source NIO1 (Negative Ion Optimization 1) developed by Consorzio RFX and INFN, plasmas from different elements were produced, and beams of H^- and O^- were extracted; the co-extracted electrons are stopped by an intermediate electrode called extraction grid (EG), while ions are accelerated up to 60 keV by another grid and imaged onto a carbon fiber composite (CFC) tile. Gas mixing was used, with N_2 or Ar to help spectroscopy. Caesium vaporizers are separately tested; the source is operated with no cesium, so the current is limited below 10 mA and voltage below 25 kV.