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Production of a helium beam in a focused ion beam machine using an electron beam ion trap

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Gallium liquid-metal ion sources that have been introduced in the late 1970s have allowed the development of a new class of micro- and nanofabrication tools collectively denominated as focused ion beam (FIB) machines. To investigate the potential of a helium beam in such a FIB instrument the authors have tested a room-temperature electron beam ion trap coupled with a high resolution FIB machine. In this letter they present their first results in target imaging using a helium beam with a resolution that allows to account for a beam diameter in the submicrometer range. © *2007 American Institute of Physics*. [DOI: 10.1063/1.2454699]