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Measurements of the energy distribution of a high brightness rubidium ion beam

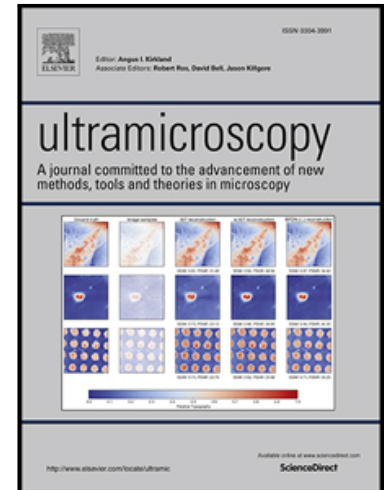
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Highlights

- The energy spread of an ultracold rubidium atomic beam ion source is measured to be 0.205 eV.
- The energy spread is an order of magnitude smaller than that of the liquid metal ion source, which will improve the resolution of focused ion beam instruments for nanofabrication purposes.
- The energy distribution was measured with a custom-built retarding field analyzer, whose resolution is investigated with general particle tracer simulations.
- The measured energy distribution agrees well with calculated distributions based on the optical Bloch equations.

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