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Accurate Gaseous Ion Mobility Measurements LARRY VIEHLAND, ANBARA LUTFULLAEVA, JAMIYANAA DASHDORJ, Chatham University, RAINER JOHNSEN, University of Pittsburgh — The accuracy of experimental measurements of gaseous ion mobility has not improved for decades, and it is still generally 2-5%. It is shown that theoretical values of the mobility of atomic ions in atomic gases can be used to calibrate a drift-tube mass spectrometer, leading to subsequent measurements that are accurate to 0.6% for He+ in He near room temperature as the ratio of the electrostatic field strength to the gas number density ranges up to 200 Td. Values of the ratio of the parallel diffusion coefficient to the mobility are also reported.

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