



Figure 3. Phase chopper data (circles) and corresponding best-fit functions (red curves) for (a) a cesium atom beam with a 70% helium, 30% argon carrier gas and (b) a potassium atom beam with a 100% helium carrier gas and using ϕ_1 and ϕ_2 as free parameters in the least-squares fit rather than fixed at the measured values ϕ_{iDC} . f_0 for each data set is labeled. We fit the contrast (black) to find the flow velocity v_0 and velocity ratio r . The statistical error for each contrast measurement is shown in fit residuals. The measured phase (blue) is also shown, but is not fit. Each point is derived from 5 s of data.