Molecular beam sorting by $\alpha/m$: from fullerenes to carbon nanotubes HENDRIK ULBRICHT, MARTIN BERNINGER, SARAYUT DEACHAPUNYA, ANDRE STEFANOV, MARKUS ARNDT, Faculty of Physics, University of Vienna, Boltzmanngasse 5, 1090 Vienna, Austria — We show that a matter-wave interferometer can be used to sort gas phase molecules according to their polarizability-to-mass ratio $\alpha/m$. We present a proof-of-principle experiment for the separation of $C_{60}$ and $C_{70}$. We propose to exploit the high molecular throughput and high spatial resolution of our setup for the enrichment of different biomolecular conformers or mixtures of single-walled carbon nanotubes with strongly varying $\alpha/m$-ratios inside a grating-based Stark deflectometer.