

Interference of larger particles

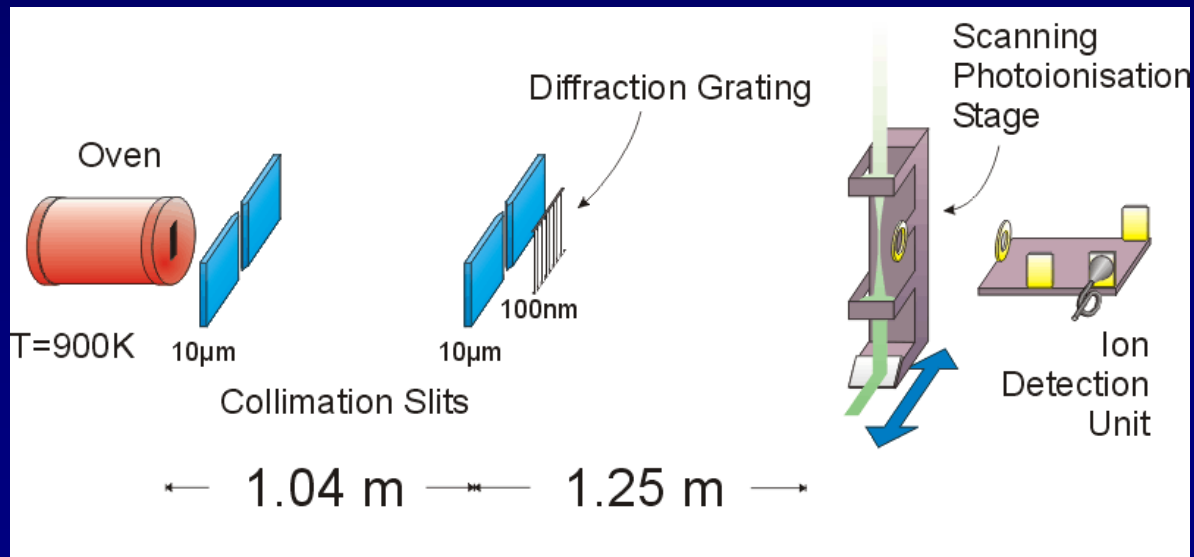
- Matter-wave interference has now been demonstrated with electrons, neutrons, atoms, small molecules, BIG molecules, & biological molecules
- Recent Example: Interference of C_{60} , a.k.a. "fullerenes", "buckyballs"



$$\text{Mass} = (60 \text{ C})(12 \text{ g/mole}) = 1.2 \times 10^{-24} \text{ kg}$$

$$\frac{\langle p^2 \rangle}{2m} = K.E. \approx \frac{3}{2} kT \Rightarrow \langle p \rangle = \sqrt{3kTm} = 2.1 \times 10^{-22} \text{ kg m/s}$$

$$\lambda = h/p = 2.9 \text{ pm} \quad (\text{c.f. } C_{60} \text{ is } \sim 1 \text{ nm across!})$$



[A. Zeilinger (U. Vienna), 1999]

