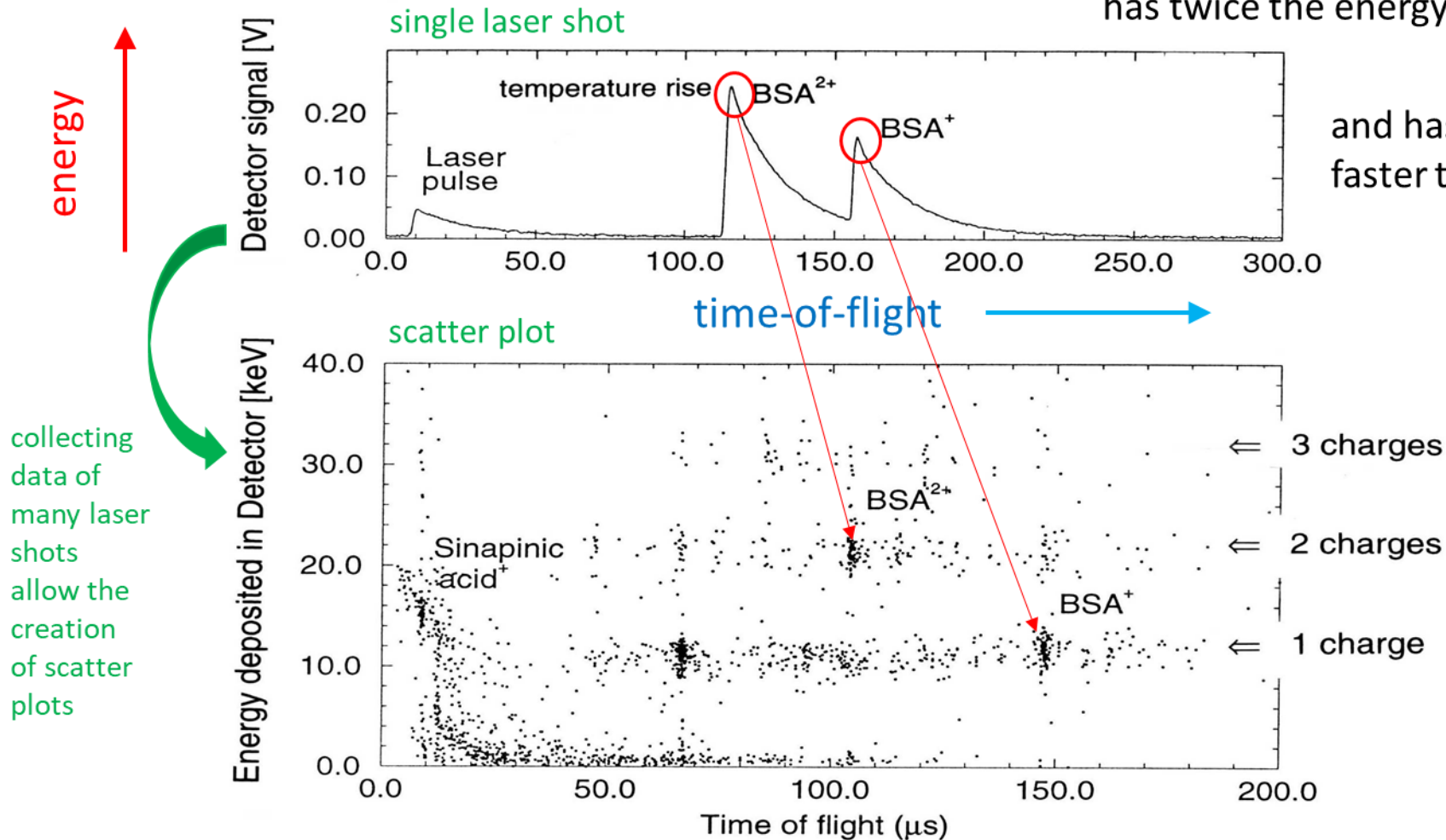


CryoDetectors measure both the **time-of-flight** and the kinetic **energy** of the single molecule

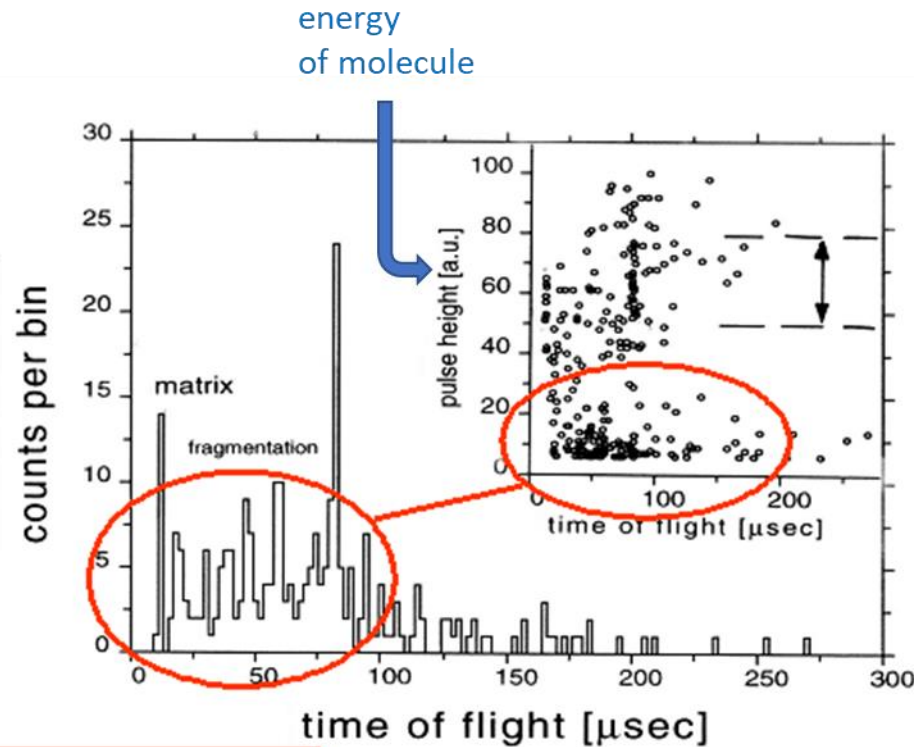
double charged molecule
has twice the energy ($E=qU$)

and has a $1/\sqrt{q}$
faster time-of-flight



Energy as additional information to clean up spectrum:

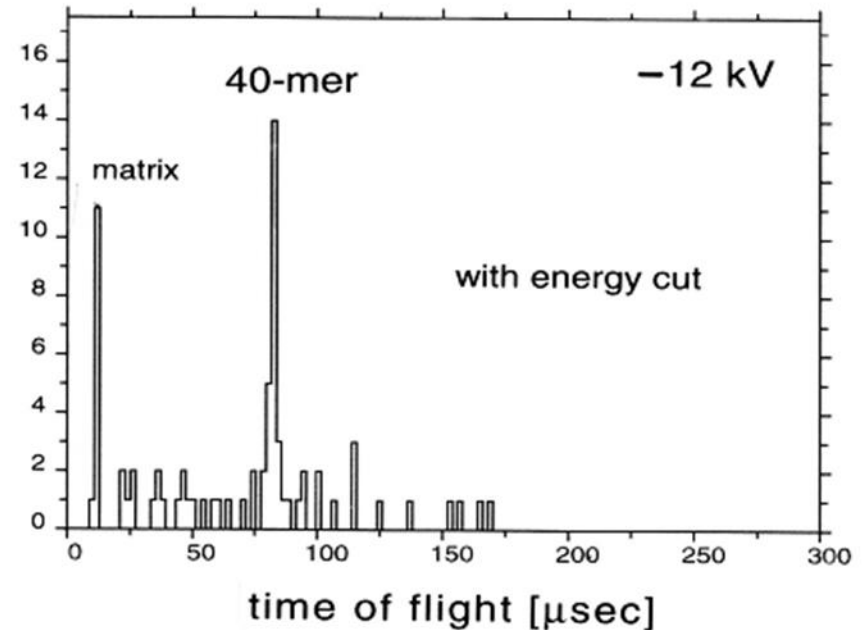
example: single stranded DNA 40-mer oligonucleotide time-of-flight spectrum



fragmentation

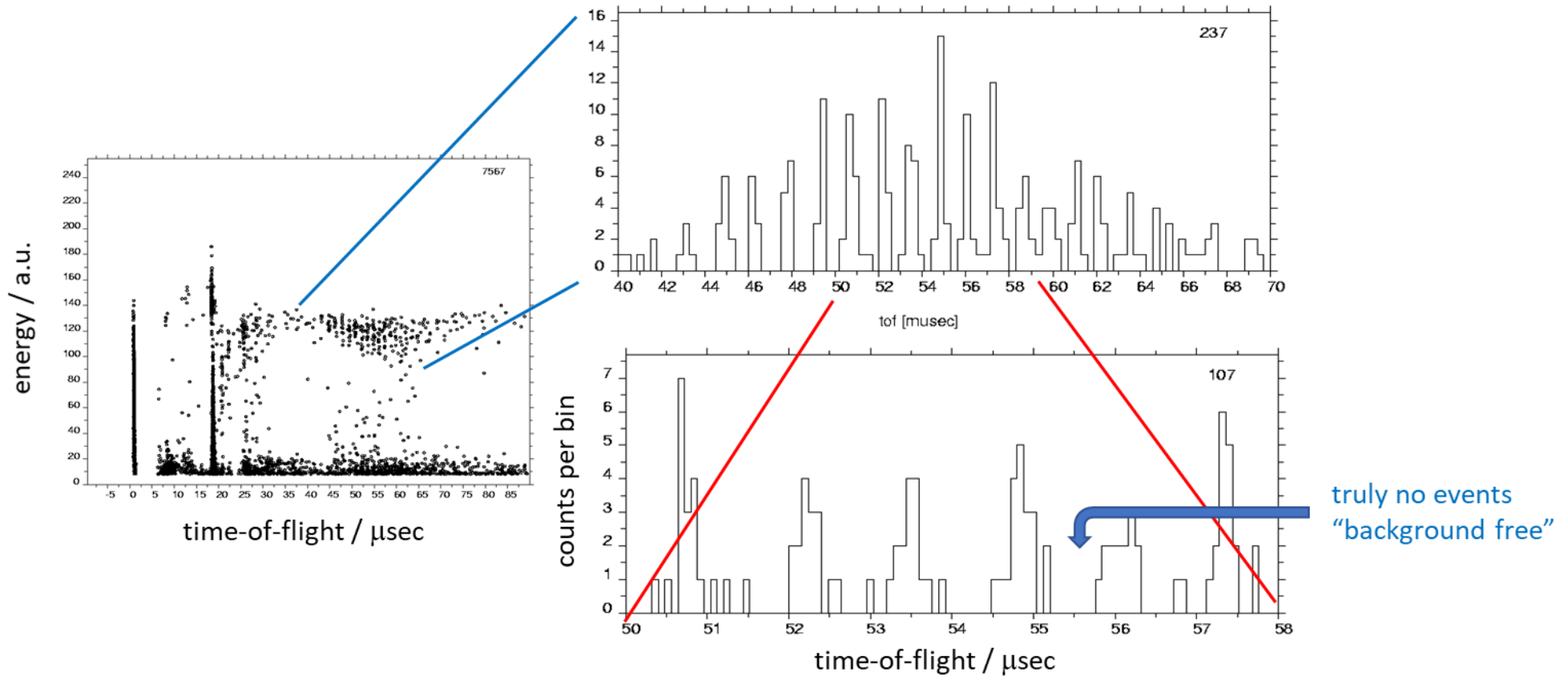
all pulses

cleaned up TOF spectrum



only pulses with 12 +/- 2 keV pulseheight
(same data set)

Polystyrene 2000: «background free spectra» by making energy cuts



Polystyrene 2000: varying laser power induces different fragmentation patterns. For the same time-of-flight (mass) the molecule has different kinetic energies (details are not yet understood, but may provide information about MALDI process)

