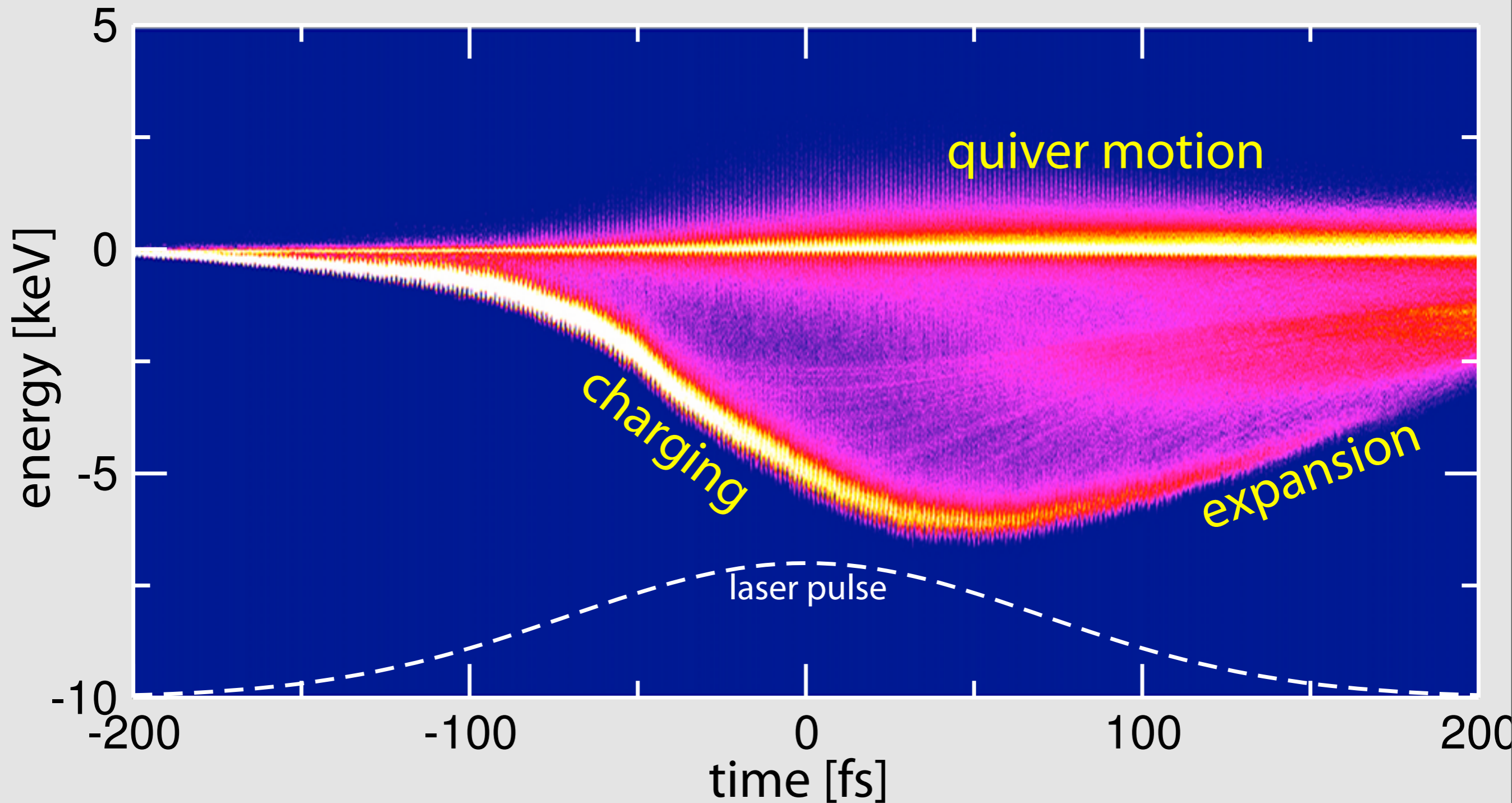


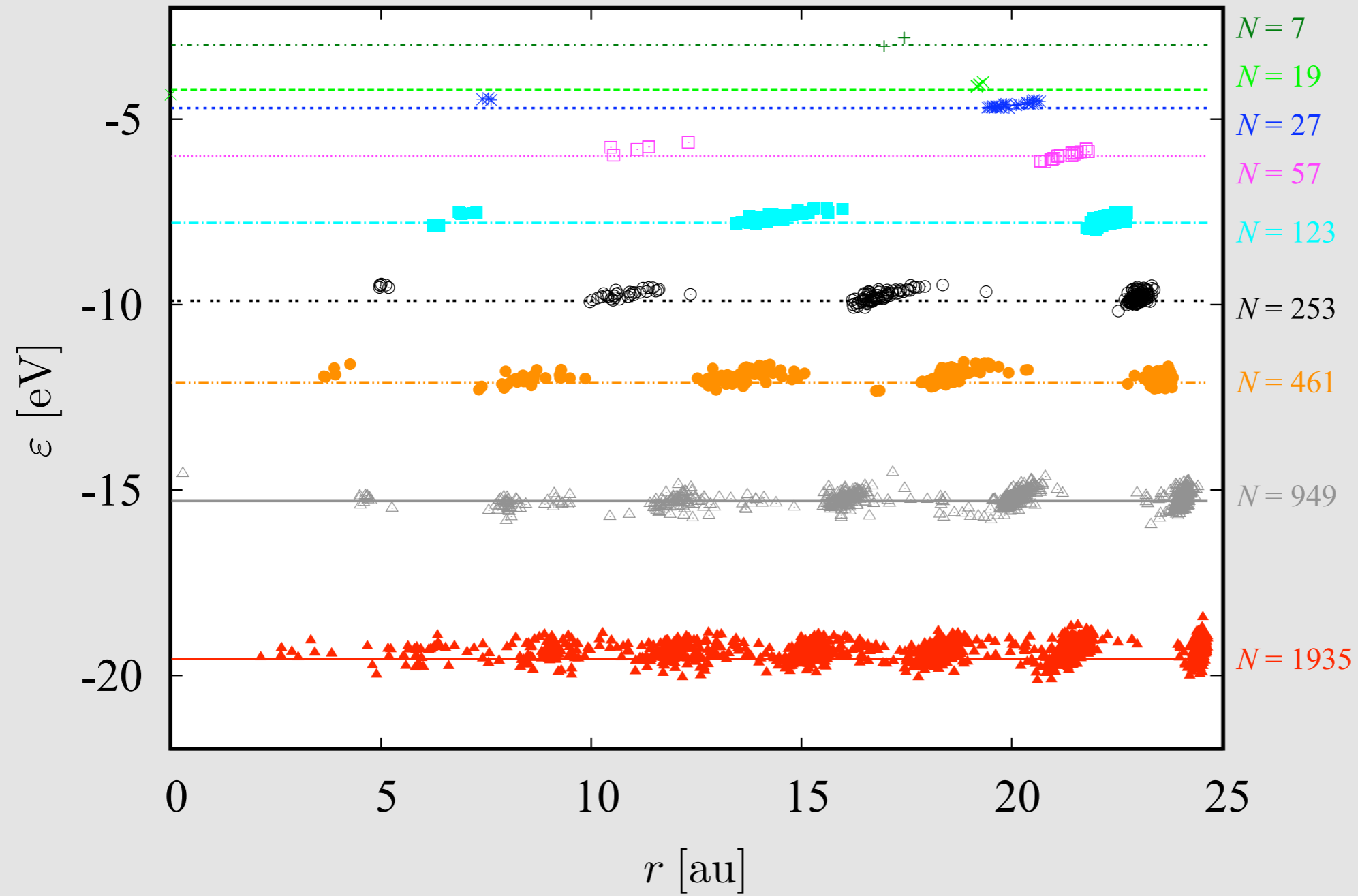
time-dependent electron energies

cluster: Xe₉₀₉₃

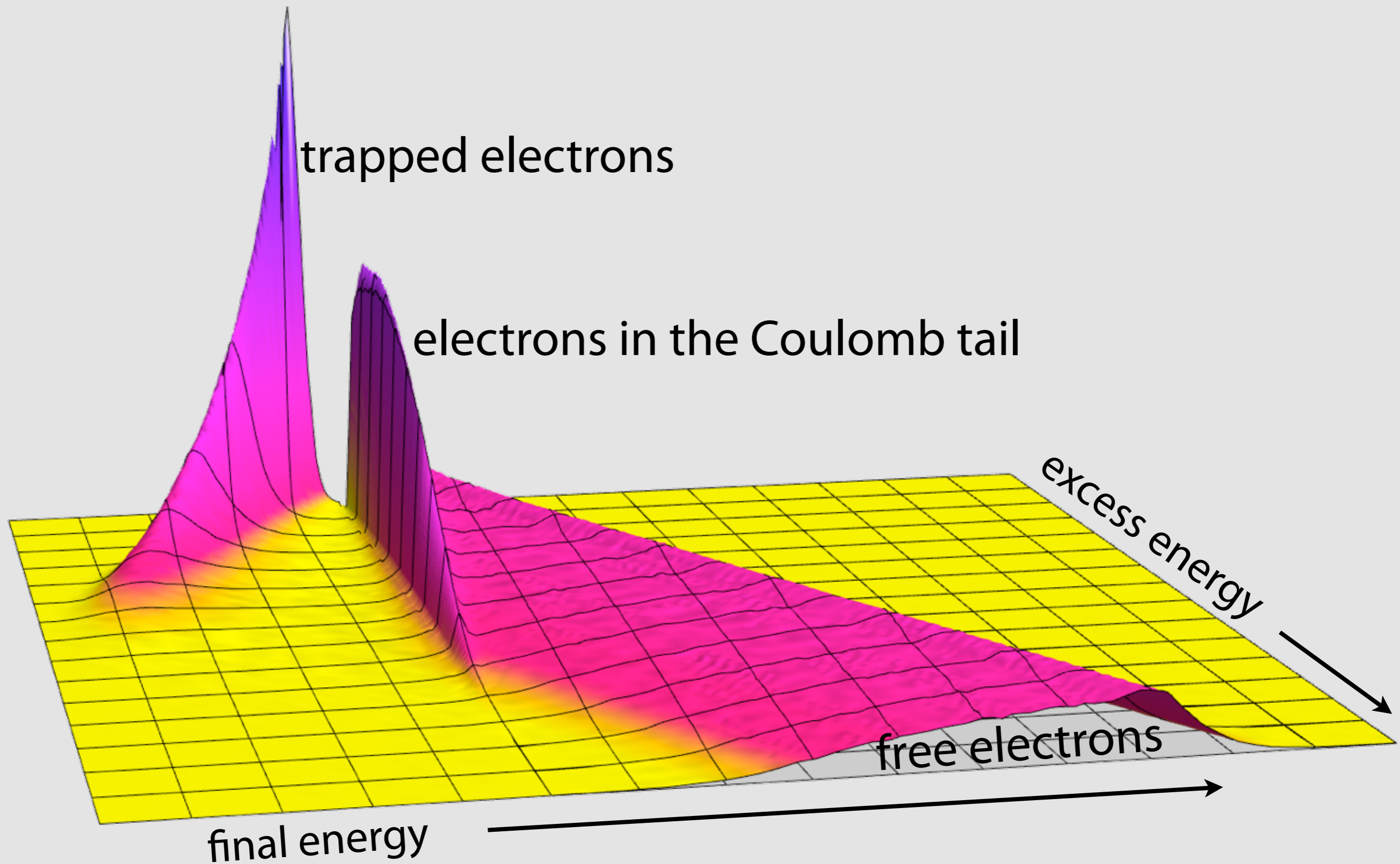
laser pulse: 780nm, $2 \times 10^{15} \text{W/cm}^2$, 200fs



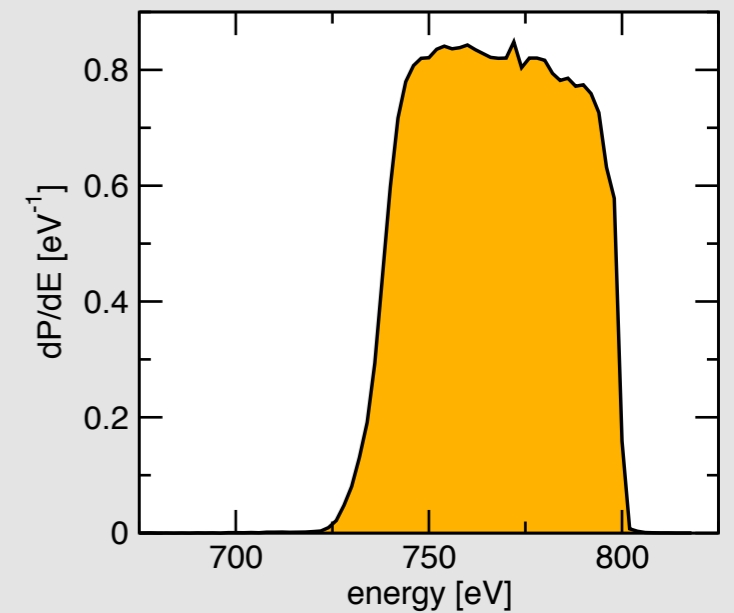
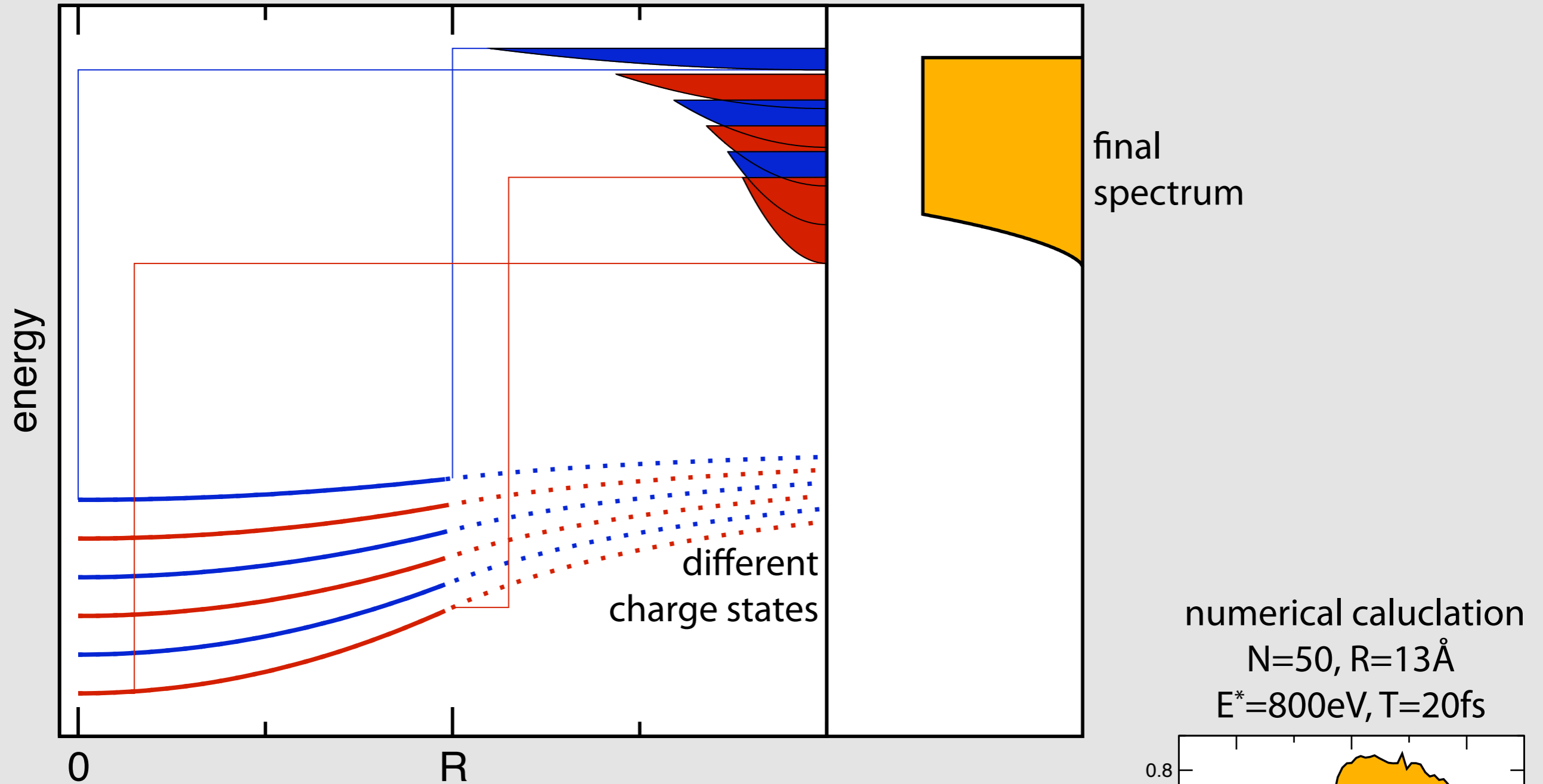
binding energies in a Coulomb complex



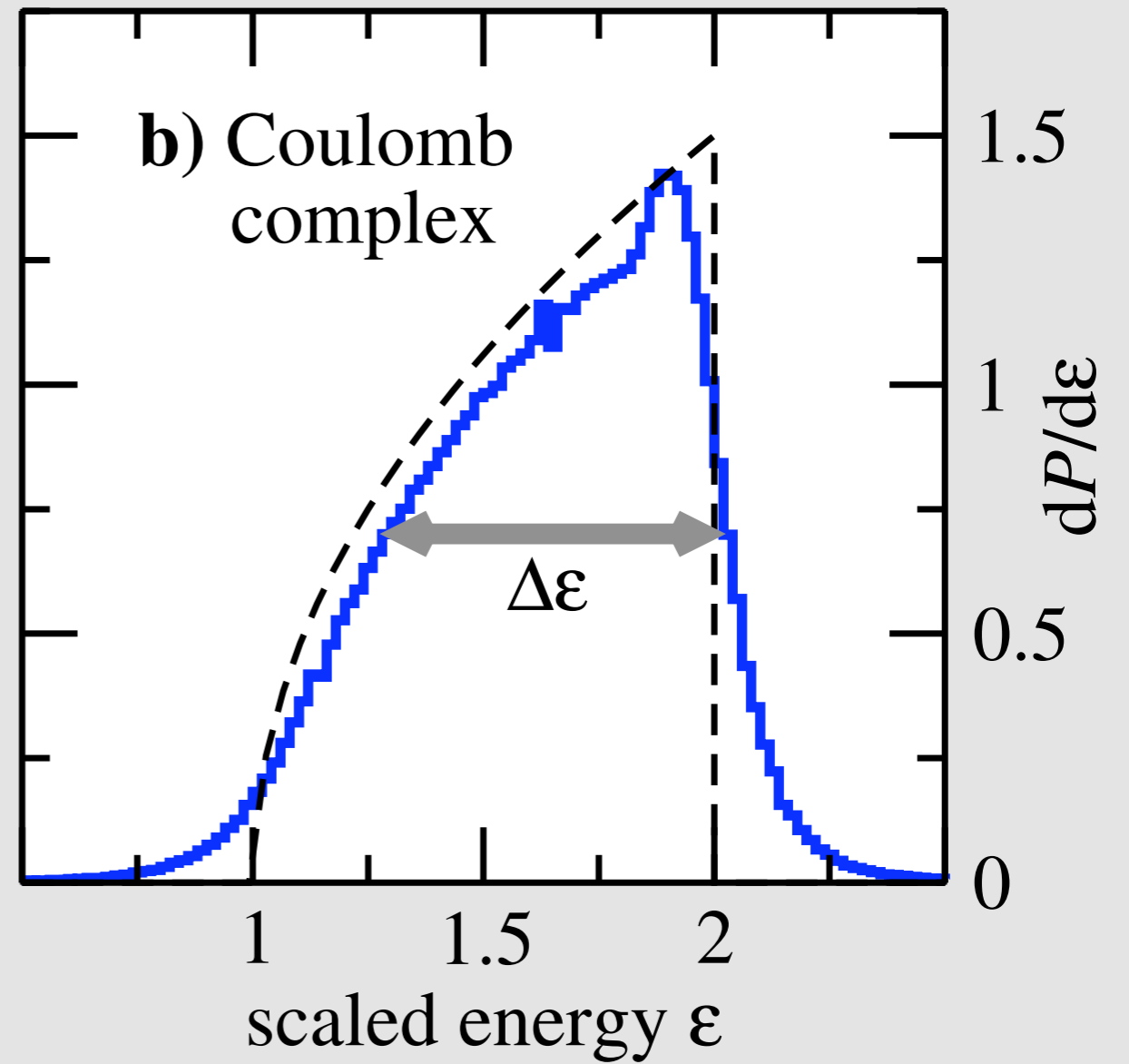
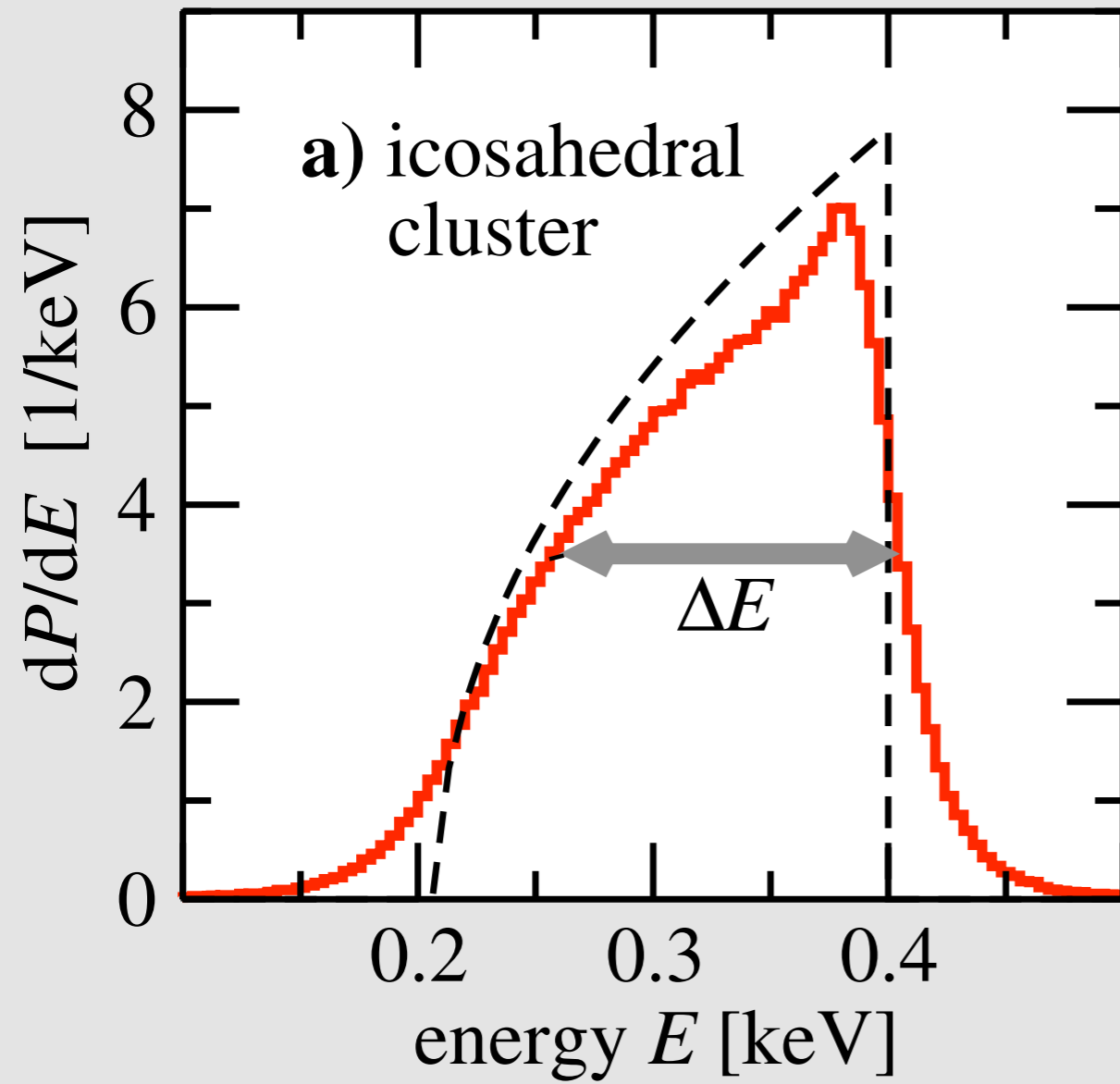
energy spectrum after sudden ionization



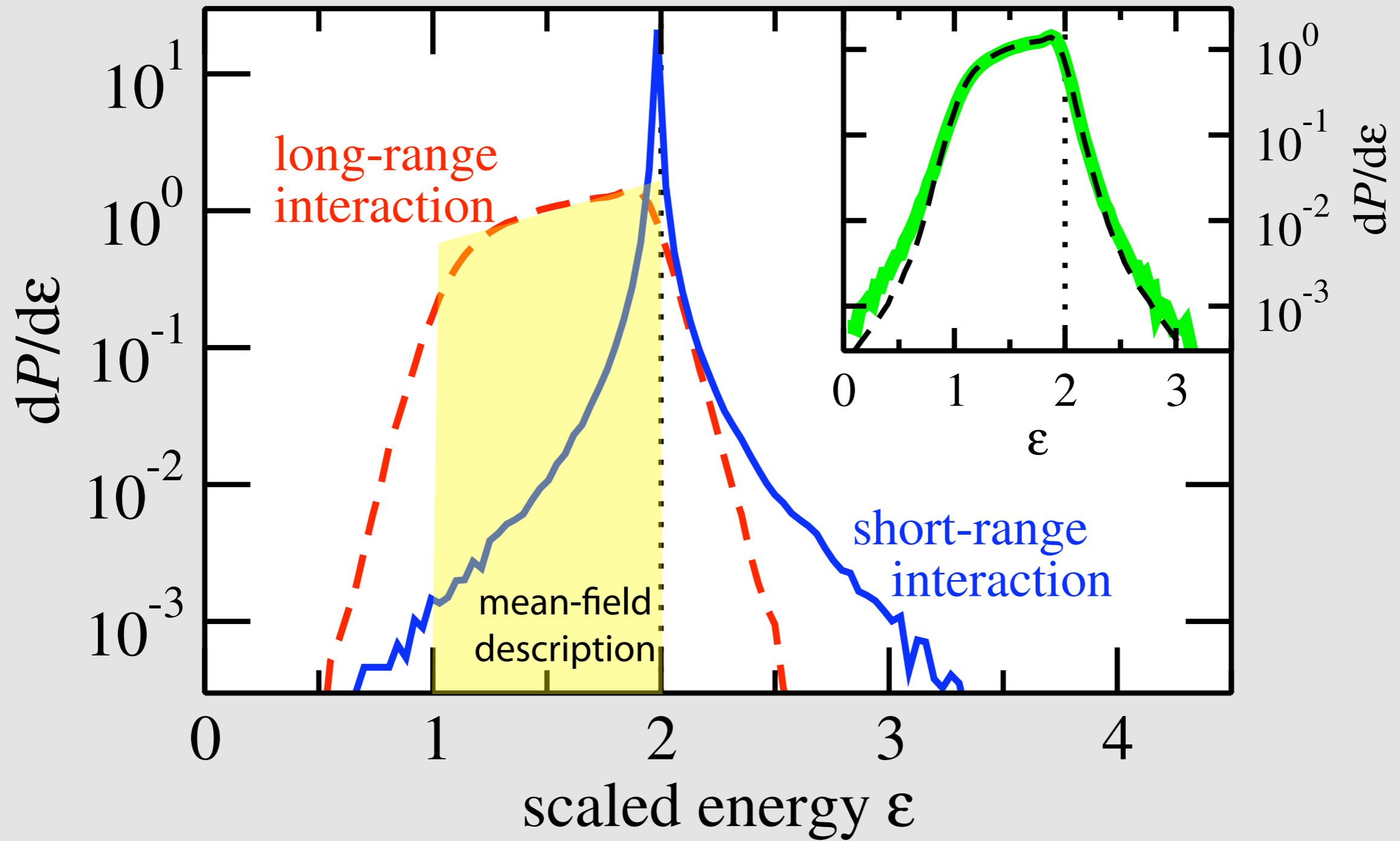
formation of a sequential spectrum



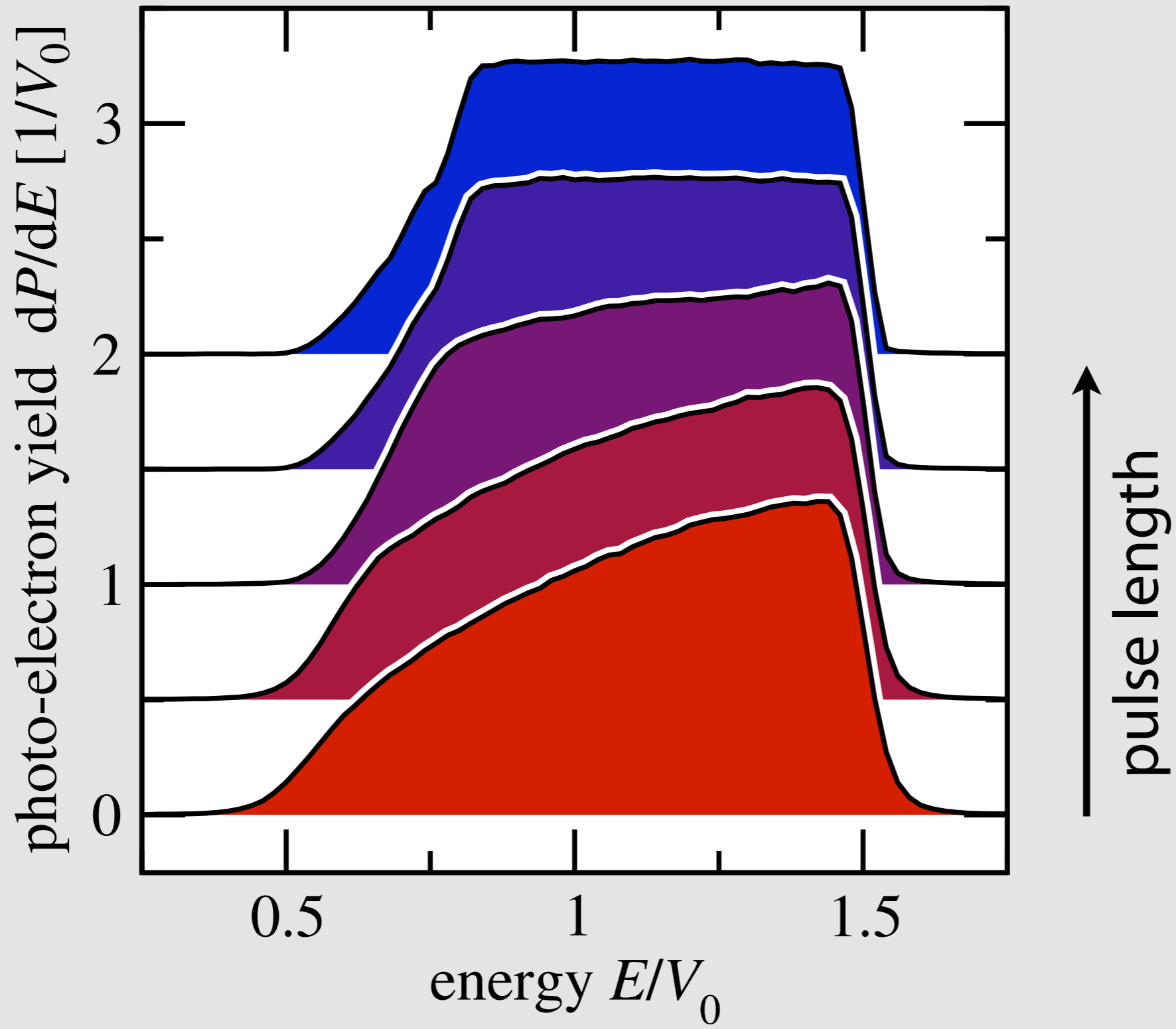
massively parallel ionization



parallel ionization: short vs. long-range interaction



transition from parallel to sequential ionization



**Slow and fast multi-photon ionization
of clusters in strong XUV and X-ray pulses**

Ch Gnodtke, U Saalman and J M Rost
Chem. Phys. (2012)

**Massively parallel ionization
of extended atomic systems**

Ch Gnodtke, U Saalman and J M Rost
Phys. Rev. Lett. 108 (2012) 175003

Dynamics of photo-activated Coulomb complexes

Ch Gnodtke, U Saalman and J M Rost
New J. Phys. 13 (2011) 013028

**Fast electrons from multi-electron dynamics
in xenon clusters induced by inner-shell ionization**

C Bostedt, H Thomas , M Hoener, T Möller,
U Saalman, I Georgescu, Ch Gnodtke and J M Rost
New J. Phys. 12 (2010) 083004