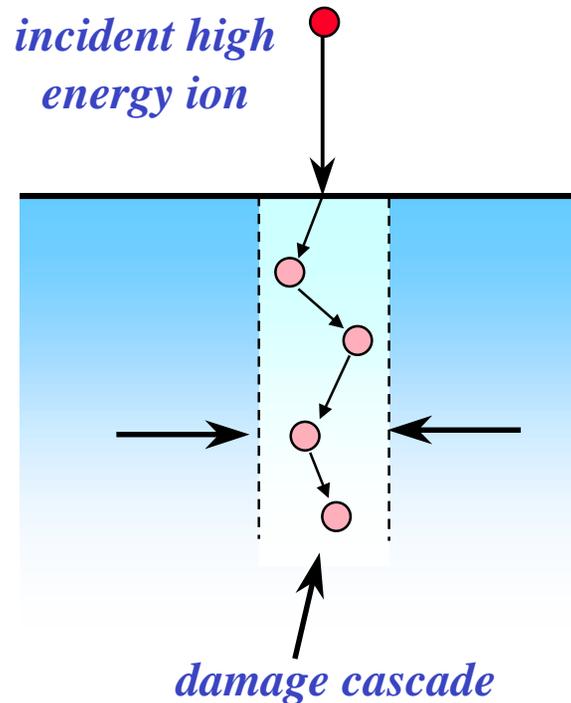


Time-resolved X-ray diffraction analyses of ion-solid interactions

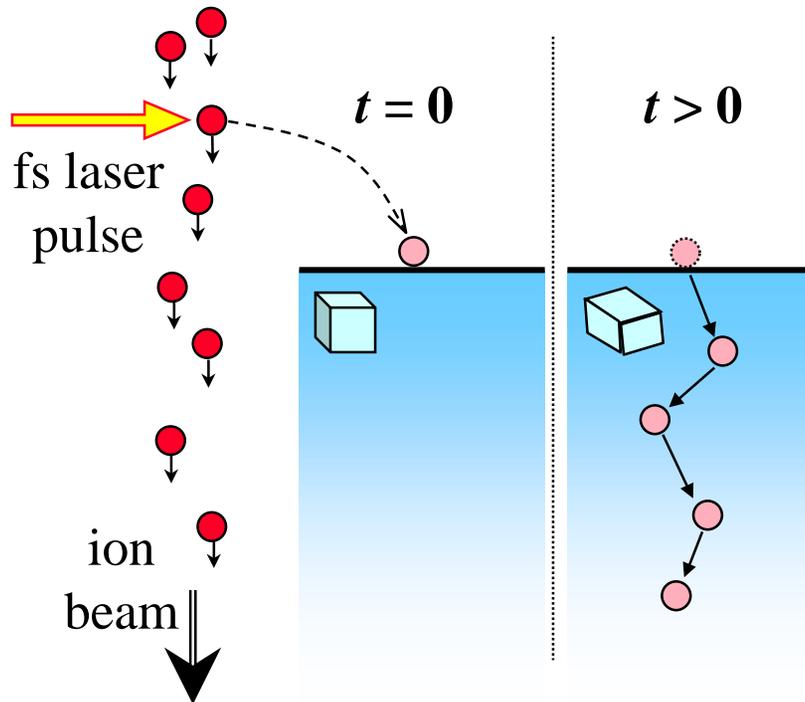
Question: what happens during the early stages (the first few ps) of ion-solid interactions?



- The prompt damage cascade of point defects has been modeled (Vook and Stein (1969), Morehead and Crowder (1970))
- Few direct measurements of the evolution of point defects have been made -- and none with \sim ps temporal resolution
- Possible solution -- time-resolved analysis of forbidden cubic crystal reflections

Time-resolved X-ray diffraction analyses of ion-solid interactions

- modulate an ion beam with a fs laser to divert an ion beam into the surface
- monitor a forbidden reflection (200, 211, etc.) and observe I vs. t



- ⇒ cubic unit cell will distort (triclinic?)
- ⇒ good signal-to-noise, so “dilute” events can be observed
- ⇒ compare with M-D calculations:

