* DLA occurs for laser intensities above 10\*\*18 W per cm\*\*2 and picosecond (10\*\*-12) pulses
  + sustained ponderomotive forces keeps electrons out of electron depleted region, leaving behind an ion channel
  + Electrons accelerated longitudinally through v cross B force (magnetic part of Lorentz force) due directly to the laser, hence direct laser acceleration
  + Electron energies vastly exceed expected limit because of addition fields from the ions in the channel, leading to additional effects. For example, an additional strong azimuthal magnetic field can lead to electron re-injection, causing further acceleration
  + Parameterizing DLA is difficult due to dynamic interplay of oscillating laser fields and quasi static channel fields
* In seminar topic
  + multi-MeV Bremsstrahlung from interactions of high current DLA electrons with high z convertor
  + Directed beams of relativistic electrons were produced in interactions of sub ps PHELIX pulse with 10\*\*19 intensity on low density polymer foams
  + Electrons with energy above 100 MeV can be produced
  + If above 1.5 MeV, then a charge of up to 1 microcoulomb can be reached.
  + Electrons responsible for the Bremsstrahlung in the range of giant dipole resonance were at more than 7.5 MeV, reaching charges of 200 nC.
  + Conversion efficiency of laser energy to electrons up to 40% (>1.5 MeV) and 18% (7.5 MeV)
    - for the fraction along the laser axis, it reaches 11% and 9% respectively
  + Photonuclear reactions in gold and tantalum were studied to characterize to bremsstrahlung spectrum.
  + High yield of nuclear reactions needing photons above 50 MeV were observed
  + Through the number of isotopes, conclusions about the number of MeV photons in the range of giant dipole resonance and the effective temp of the BS spectrum were drawn.
  + A BS spectrum of >8 MeV, approximated with a exponential distribution with a temp of 13-16 MeV with 1-4 10\*\*11 photons per laser shot in energy range of 8 MeV to 70 MeV was reported
  + This is a record breaking conversion efficiency for the GDR range (>8 MeV) approaching 2%.
  + In good agreement with simulations
* GDR
  + high frequency collective excitation of atomic nuclei, i.e. collective oscillation of all protons against all neutrons in a nucleus