

In the context of modeling low-temperature plasmas, electron energy distribution functions are generally nonMaxwellian.

Cross sections vs
electron energy

Dominant collision processes
are between electrons and
ground state neutrals



*Boltzmann equation
solver => eedf*



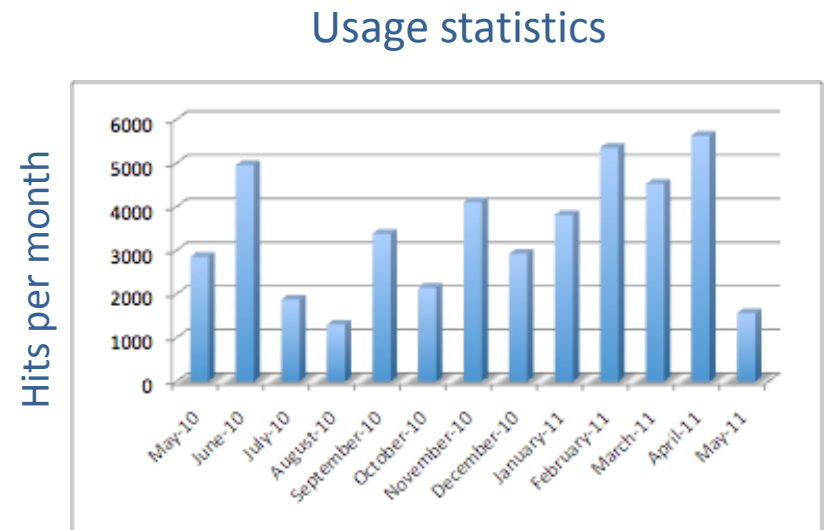
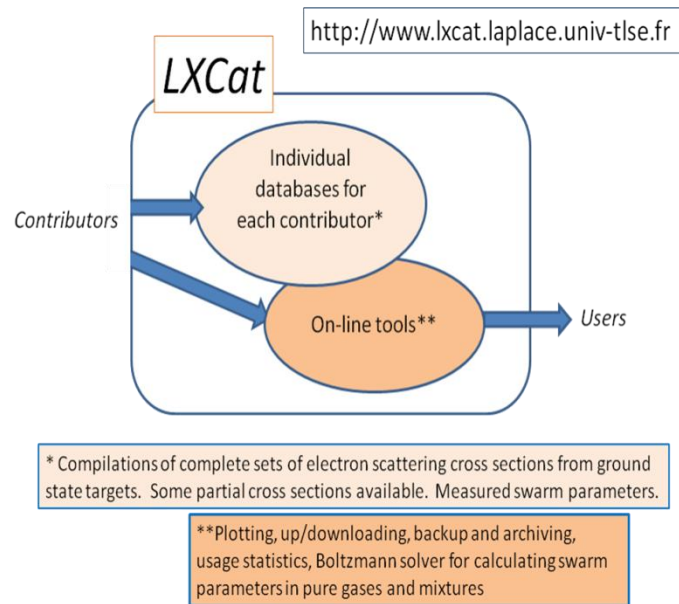
Swarm parameters
vs E/N

Parameter iE/N is reduced
field strength, ratio of electric
field strength to neutral
density

Procedure is suitable for arbitrary gas mixtures if cross sections available for individual components

A « complete set » of cross sections consists of elastic momentum transfer, total for each inelastic process, ionization & attachment.

LXCat : an open access website for collecting, displaying and downloading ELECtron SCATtering cross sections and swarm parameters



Hardware purchased by the CNRS Réseau Plasmas Froids .

- 12 databases with electron-neutral scattering cross sections for 65 gas species
- 4 databases with experimental swarm parameters, 20 species
- Benchmarking of additional software tools in progress
- ICECat (Ion Scattering Data) : 4 contributors
- GEC 2011 workshop on « plasma data exchange »