



Scheme and discussion for the Deliverable : Task1



TASK 1-Plasma heating, Wave-plasma interaction

Task Leader: **INFN** - Participants: INFN, JYFL, GSI, ATOMKI, IFIN-HH, IKF

- Experiment at LNS with the plasma reactor devoted to investigate the creation of over-dense plasmas by means of electrostatic waves;
- Correlation of X-rays emission measurements and electron heating study;
- Experiment at LNS with a variable frequency plasma trap devoted to investigate the creation of over-dense plasmas by means of electrostatic waves;
- Relationship between the X-rays emission data and the charge state distributions.
- Ionization efficiency measurements with different mixing gas parameters.
- Double frequency heating;



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- Theoretical analysis and consideration of microwave injection (optimum position of waveguide);
- Sweeping frequency over a wide range at different power levels;
- Multiple frequency heating

- Simulation studies of the plasma: non-lost and lost electrons



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- Increase the ionization efficiencies by higher ion confinement times and higher electron densities (MD-method);
- Study of plasma wall interactions and influences of the variation of source parameters on the high energetic electron population in the plasma;
- Decrease of the X-ray emission;
- JYFL task 1 activities !!!



List of activities:

-Theoretical advancements

-Simulations and codes

-Experimental activities (GSI, INFN, ATOMKI, IFIN-IKF, JYFL)

-Diagnostics developed under ENSAR/ARES or improved or applied to ECRIS

-Improvement of know-how as outcome of ARES

Deadline ?

Steering Committee final review