



Contribution ID: 33

Type: **Short oral in replacement of poster**

Short_Oral_33: Verification of Ni ion dielectronic satellite structure in JET plasma diagnostic for low and high plasma rotation

Wednesday, 8 September 2021 17:10 (10 minutes)

Measurement of the x-ray spectra of the He-like Ni ions (Ni^{26+}) and their dielectronic satellites (Ni^{25+} , Ni^{24+} , and Ni^{23+}) plays a crucial role in determination of electronic and ionic temperature of plasma in the JET device. Because $n \geq 3$ satellites of Ni^{25+} overlap with resonance 'w' line of Ni^{26+} , it is important to reconstruct the structure of these satellites reliably. It is especially important in the cases when plasma rotation is high what results in additional shift of $n \geq 3$ satellites of Ni^{25+} in respect to resonance 'w' line.

Collisional-Radiative Modelling (CRM) by using the FAC code has been used for modeling the spectral emission from Ni^{26+} + dielectronic satellite ions from plasmas for various electronic temperatures. Multi-Configurational Dirac-Hartree-Fock + Configuration Interaction (MCDHF-CI) calculations by using the GRASP code has been used to examining electron correlation effect on wavelengths and transition rates for $L \rightarrow K$ transitions occurs in He- and Li-like Ni ions. Basing on ab initio calculations we were searching for optimal approach to fit the $n \geq 3$ satellites of Ni^{25+} in experimental JET spectra.

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