Contribution ID: **3692**   Type: **not specified**

P5.4005 The role of dielectric function local field corrections in the plasma transport properties description in the linear response theory

Friday, 12 July 2019 14:00 (2 hours)

See full abstract here http://ocs.ciemat.es/EPS2019ABS/pdf/P5.4005.pdf

Within the linear response theory in the formulation of Zubarev [1, 2] the modification of electron-ion and electron-electron correlation functions is made with the account of local field corrections in the dielectric function [3]. Recently the Chebyshev polynomial expansion of the Fermi distribution functions was suggested [4, 5]. Using this method, the electron-electron correlation functions were reduced to frequency and momentum two-dimensional integrals for the arbitrary electron degeneracy. The calculations were performed in the random phase approximation (RPA) for the dielectric function. The proposed approximation provides more accurate consideration of the inter-particle correlations effects in a strong collisions area. The results for hydrogen fully ionized plasma transport coefficients are compared with those obtained in RPA.

References
[1] D. N. Zubarev, Nonequilibrium Statistical Mechanics (Plenum, New York, 1974).
[2] G. Röpke, Physica A 121, 92 (1983).
[3] S. Ichimaru, H. Iyetomi and S. Tanaka. Phys.Rep. 149, 91 (1987).
[4] V. S. Karakhtanov, The EPS Conference on Plasma Physics, Leuven, Belgium, 2016,
http://ocs.ciemat.es/EPS2016PAP/pdf/P5.102.pdf
[5] V. S. Karakhtanov, The EPS Conference on Plasma Physics, Belfast, Northern Ireland, UK, 2017, http://ocs.ciemat.es/EPS2017PAP/pdf/P5

pppo

Presenter: KARAKHTANOV, V. (EPS 2019)

Session Classification: Poster P5