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**Static and Dynamic Structure Factors with Account of the Ion Structure for High-temperature Alkali and Alkaline Earth Plasmas** SALTANAT POLATOVNA SADYKOVA, WERNER EBELING, Institute for Physics, Humboldt University at Berlin, Germany, IGOR M. TKACHENKO, Polytechnic University of Valencia, Spain — The electron-electron, electron-ion, ion-ion and charge-charge static structure factors (SSF) are calculated for alkali and  $\text{Be}^{2+}$  plasmas at various temperatures and concentrations using the method described by G. Gregori et al., *Phys. Rev. E* **74**, 026402 (2006); *High Energy Density Phys.* **3**, 99 (2007). The dynamic structure factors (DSF) for alkali plasmas are calculated using the method of moments developed by V. M. Adamjan et al., *High. Temp.* **21**, 307 (1983). In both methods the screened Hellmann-Gurskii-Krasko potential, obtained on the basis of Bogolyubov's method, has been used taking into account not only the quantum-mechanical effects but also reflects important features of the ion structure (S. Sadykova et al., *Contrib. Plasma Phys.* **49**, 76 (2009)). Our results on the SSFs for  $\text{Be}^{2+}$  plasma deviate from the data obtained by Gregori et al., while our DSFs are in a reasonable agreement with those of S. V. Adamjan et al., *Phys. Rev. E* **48**, 2067 (1993). We conclude that the short range forces, which we take into account by means of the HGK model potential, which deviates from the Coulomb and Deutsch ones, employed by S. V. Adamjan et al. and Gregori et al. correspondingly, influence the SSFs and DSFs significantly.

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