Erratum: Random-walk shielding-potential viscosity model for warm dense metals [Phys. Rev. E 106, 014142 (2022)]

Yuqing Cheng, Haifeng Liu, Yong Hou, Xujun Meng, Qiong Li, Yu Liu, Xingyu Gao, Jianmin Yuan, Haifeng Song, and Jianguo Wang

(Received 20 June 2025; published 10 July 2025)

DOI: 10.1103/kv2g-s7wp

We identified an error in the original Fig. 3 of our paper. The dashed curves, representing results from the Stanton-Murillo transport (SMT) model [1], were incorrect due to coding errors in our implementation.

We have now redrawn the SMT results using the original source code [2], as shown in the corrected Fig. 3. All other curves and data points, including results from the random-walk shielding-potential viscosity model (RWSP-VM), Langevin molecular dynamics (LMD), and classical molecular dynamics (CMD) [3], remain unchanged. In the revised figure, above 40 eV, SMT agrees well with RWSP-VM and CMD; below 40 eV, SMT no longer aligns with them.

The conclusions of our original paper remain valid because SMT was not used elsewhere for comparisons beyond Fig. 3. Our model (RWSP-VM) shows consistent agreement with other established methods (LMD, CMD, etc.) across the studied range.

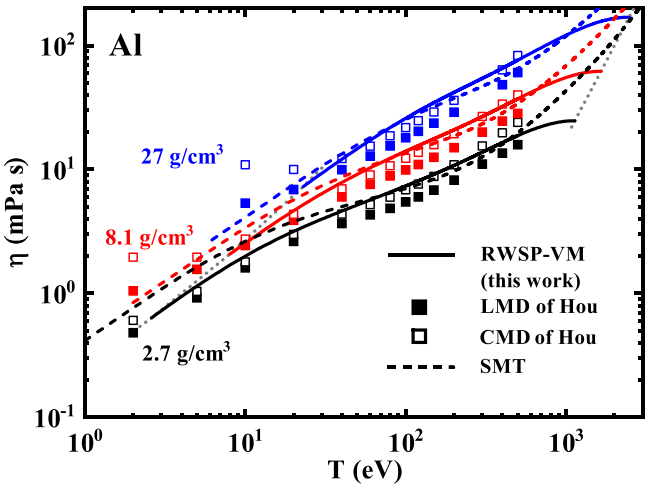


FIG. 3. Shear viscosity of Al. The solid lines indicate the RWSP-VM results, while the dashed lines represent the SMT results. The filled and open squares indicate the LMD and CMD simulation data reported by Hou *et al.* [3], respectively. The black, red, and blue colors denote the data for densities of 2.7, 8.1, and 27 g/cm^3, respectively. The gray dotted lines represent the lower (left) and upper (right) limits of the temperature range in which the proposed model is applicable.

[1] L. G. Stanton and M. S. Murillo, Ionic transport in high-energy-density matter, Phys. Rev. E **93**, 043203 (2016).

[2] L. J. Stanek, L. G. Stanton, and M. S. Murillo, Plasma properties package, https://github.com/lukestanek/plasma_properties_package (2020).

[3] Y. Hou, Y. Fu, R. Bredow, D. Kang, R. Redmer, and J. Yuan, Average-atom model for two-temperature states and ionic transport properties of aluminum in the warm dense matter regime, High Energy Density Phys. **22**, 21 (2017).

 ©2025 American Physical Society