

Section 5: Collisions

AE435
Spring 2018

5 Atom-Atom Collisions

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5.1 Elastic

Lennard-Jones "6-12" potential profile used for elastic scattering, it combines:

- Weak dipole attraction, r^{-6}
- Short-range "hard-core" repulsion, r^{-12}

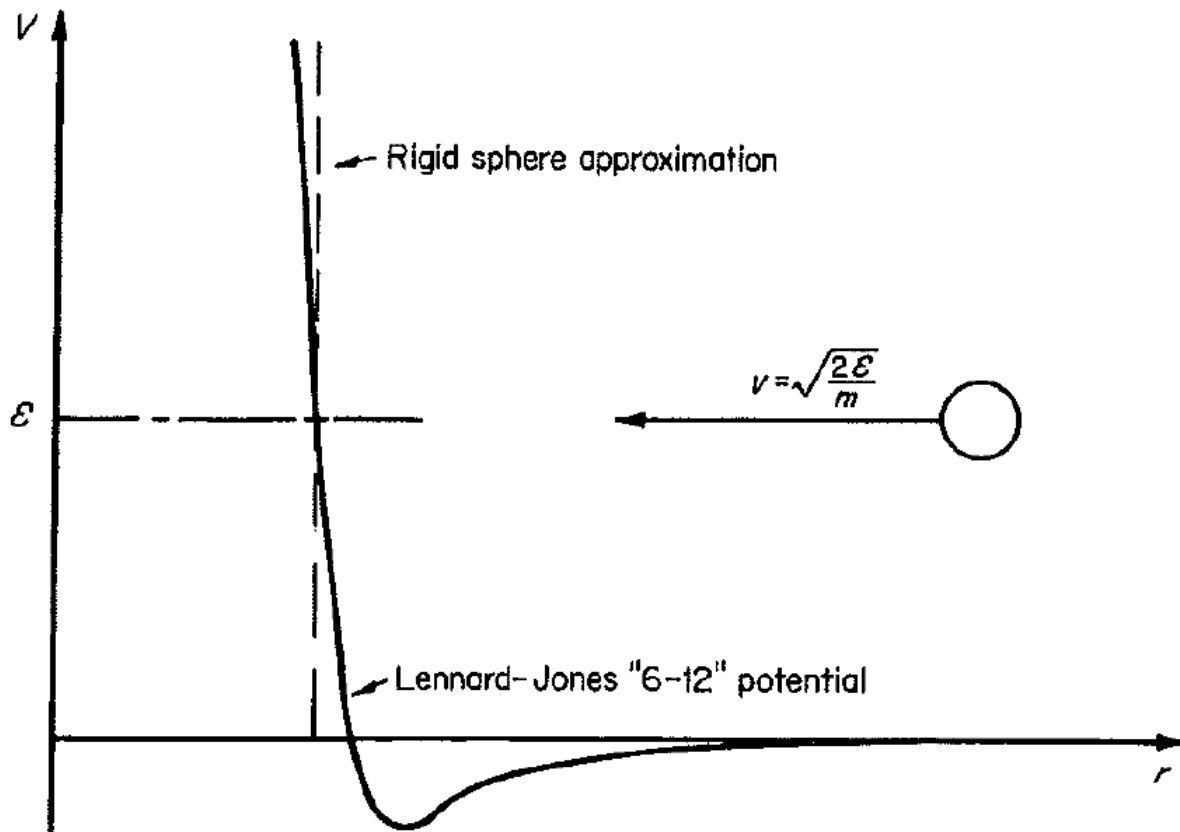


Fig. 4-11 Typical interatomic potential profiles for elastic scattering calculations.

The repulsion results from interactions between bound electrons as the two atoms attempt to interpenetrate. Neutral elastic collisions are studied in great detail (both experimentally and theoretically) because of their importance in determining transport properties.

5.2 Inelastic

Mean atomic speeds are so small compared to mean electron speeds, these are generally not important in EP plasmas.