

Equivalence of Boltzmann and moment equations (Corrigendum)

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In Cubarsi (2010)’s Eq. (15) relating the symmetric tensor components $\Lambda_{i_1\dots i_k}$ and $\lambda_{i_1 i_2 \dots i_k}$ was not correctly written. It should be

where \mathcal{S} means the symmetrized tensor.

They are now symmetric quantities, all the results remain totally valid.

$$\Lambda_0 = \frac{\partial \lambda_0}{\partial t} - \frac{\partial \mathcal{U}}{\partial r_i} \lambda_i,$$

$$\Lambda_i = \frac{\partial \lambda_i}{\partial t} + \frac{\partial \lambda_0}{\partial r_i} - 2 \frac{\partial \mathcal{U}}{\partial r_k} \lambda_{ik},$$

$$\Lambda_{ij} = \frac{\partial \lambda_{ij}}{\partial t} + \mathcal{S} \left(\frac{\partial \lambda_i}{\partial r_j} \right) - 3 \frac{\partial \mathcal{U}}{\partial r_k} \lambda_{ijk},$$

...

$$\Lambda_{i_1 \dots i_{n-1}} = \frac{\partial \lambda_{i_1 i_2 \dots i_{n-1}}}{\partial t} + \mathcal{S} \left(\frac{\partial \lambda_{i_1 i_2 \dots i_{n-2}}}{\partial r_{n-1}} \right) - n \frac{\partial \mathcal{U}}{\partial r_{i_n}} \lambda_{i_1 i_2 \dots i_n},$$

$$\Lambda_{i_1 \dots i_n} = \frac{\partial \lambda_{i_1 i_2 \dots i_n}}{\partial t} + \mathcal{S} \left(\frac{\partial \lambda_{i_1 i_2 \dots i_{n-1}}}{\partial r_{i_n}} \right),$$

$$\Lambda_{i_1 \dots i_{n+1}} = \mathcal{S} \left(\frac{\partial \lambda_{i_1 i_2 \dots i_n}}{\partial r_{i_{n+1}}} \right),$$

References

Cubarsi, R. 2010, A&A, 522, A30