Erratum: Role of inertia for the rotation of a nearly spherical particle in a general linear flow [Phys. Rev. E **91**, 053023 (2015)]

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(Received 23 October 2015; published 19 November 2015)

DOI: [10.1103/PhysRevE.92.059901](https://doi.org/10.1103/PhysRevE.92.059901) PACS number(s): 47.15.G–, 83.10.Pp, 47.55.Kf, 47.10.–g, 99.10.Cd

In this paper we investigated the role of inertia for the rotation of a nearly spherical particle in a general linear time-independent flow. As we continued to work on related questions we realized that the argument used in this paper to show that Eq. (7) evaluates to zero is valid for a constant shear flow, but not in general. This implies that our results for the shear flow [Eq. (22)] are correct and consistent with the results of Refs. [1–3]. But for other linear flows Eq. (7) may give rise to additional contributions to the angular particle velocity [Eq. (19)]. As a consequence Eq. (23b) for the case of a purely rotational flow is replaced by $\dot{\theta} = (\epsilon/30)[St - Re_s] \sin 2\theta$. The right-hand side of this equation evaluates to zero for neutrally buoyant particles ($St = Re_s$). This means that a neutrally buoyant particle rotates precisely like the surrounding fluid as it must since the fluid rotates as a rigid body. For an elongational flow the factor $11/70$ in Eq. (24b) is replaced by $8/42$. The qualitative conclusions for a nearly spherical particle in an elongational flow do not change.

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