

Abstract Submitted  
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**The stresslet induced by active swimmers** SEBASTIEN MICHELIN,  
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— Active particles such as self-propelled cells and catalytic swimmers disturb the fluid around them as stresslets, symmetric force dipoles whose flow field decays as the inverse distance squared. The characteristics of the stresslet govern their collective dynamics and their contribution to the suspension bulk stress. Unlike swimming speeds, the stresslets of active particles are rarely determined due to the lack of a suitable theoretical framework, since it combines information on both fluid velocity and forces at the surface of the active particle. We propose a new method, based on the reciprocal theorem of Stokes flows, to compute stresslets as integrals of the velocities on the particle's surface exclusively. This method can be efficiently used to determine the stresslet of spheroidal chemically-active particles. This approach will help tuning the stresslet of artificial swimmers and tailor their collective motion in complex environments.

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