

Abstract Submitted  
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**Rotation rate of fibers in turbulence**<sup>1</sup> GAUTIER VERHILLE, IRPHE  
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— Since the last decade , more and more studies are devoted to the dynamics of  
anisotropic particles in turbulence. It has been shown theoretically and numerically  
that fibers smaller than the Kolmogorov length tend to align preferentially with the  
vorticity. More recently, Pujara et al. shows that longer fibers tend to align with the  
most extensional direction of the coarse grained velocity gradient. This difference  
of preferential alignment should have major impact on the rotational dynamics of  
particles: small fibers are expected to spin whereas long fibers are expected to  
tumble. We present here an experimental investigation on the global rotational  
dynamics (tumbling and spinning) of fibers smaller and larger than the Kolmogorov  
length. In this talk we will quantify the spinning and tumbling of fibers smaller and  
longer than the Kolmogorov length

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