




H2020 MSCA - ITN - 2017 - 766007

## Magnetics and Microhydrodynamics, from guided transport to delivery

**ESR 14** *Generation of functional ciliated surfaces and application to biofouling-resistant micro*

<b>Research project</b>	<p>In nature, many vital processes involve flows driven by cilia or flagella, from removal of pollutants in the trachea to the movement of microscopic organisms in viscous fluid environments. In this project synthetic cilia will be created to structurally cover surfaces to facilitate surface driven fluid transport. This requires coordinated, directional beating of the cilia. We plan to investigate and build two types of cilia – magnetically driven cilia and ATP driven bottom up assembled bio-based cilia. These two approaches combined with will allow to have alternative technologies for surface driven transport. We will test the system by using such flows for clearing pathogens (bacteria and mucus-like substances) out of the channel, thus preventing fouling of microfluidic devices.</p>
<b>Supervisor</b>	<p>Name: Eberhard Bodenschatz e-mail: <a href="mailto:eberhard.bodenschatz@ds.mpg.de">eberhard.bodenschatz@ds.mpg.de</a> website: <a href="http://www.lfpn.ds.mpg.de">http://www.lfpn.ds.mpg.de</a></p>
<b>Host Institution</b>	<p>Max-Planck Institute for Dynamics and Self-Organization Laboratory for Fluid dynamics, Pattern formation and Biocomplexity Am Faßberg 17 37077 Göttingen</p> 
<b>Required profile</b>	<p>The candidate should hold a MS degree in Physics or Chemistry, ideally with a strong interest in Fluid Physics, Biophysics, Physical Chemistry, Soft and Condensed Matter, and Magnetism. Interest for interdisciplinary research is important. Research stays are planned in France, Spain, and Latvia.</p>