

Dr Steven L. Neale



Dr Neale holds a Royal Academy of Engineering Research Fellowship which he is using to conduct research into developing micromanipulation techniques to create new tools for biomedical research. His research focuses on using Optoelectronic Tweezers (OET) to move and deform cells by applying electrical forces onto them. OET uses a photoconductive device that converts a light pattern into a pattern of electrical gradients which place dielectrophoresis forces onto the cells. Dr Neale has worked on using OET to study differentiated neurons, the developmental stage of embryos and the viability of spermatozoa. He is currently working on applications including the diagnosis of Human African Trypanosomiasis (HAT also known as sleeping sickness) and using the elasticity of erythrocytes as a biomarker for aging and obesity. Other current research projects include increasing the forces available in OET experiments by two different methods, firstly the creation of highly polarisable actuators and, secondly, the combination of OET and acoustics. He is also working on the miniaturisation of the OET optical setup to produce a portable device.

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Work Groups

Biophotonics	<input checked="" type="checkbox"/>
Integrated Photonics	<input type="checkbox"/>
Solar Cell Devices	<input type="checkbox"/>
Solid State Laser Engineering	<input type="checkbox"/>
Photonic Sensors	<input type="checkbox"/>

