

“Mathematical tales of a sperm tail”

Abstract:

Breakthrough research into the mechanics of sperm tails has profound implications for life itself, from human reproduction to the development of sustainable food production. Fluid dynamics, elasticity and mathematical biology can provide predictive insights into the mechanics of these specialised cells during their arduous journey through the often hostile environment of the female reproductive tract. Brazilian-born Dr Hermes Gadelha talks about his work at the fertile union of mathematical logic, biomechanics and medicine.

Brief bio:

Dr Hermes Gadelha works in the fertile intersects between mathematics, fertility and active soft matter. Following his DPhil in Mathematics at the University of Oxford in 2013, he

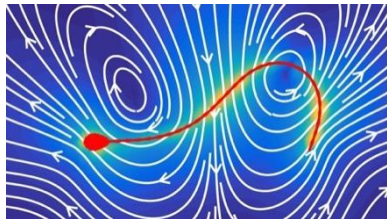


Fig 1. Fluid mechanics around a human sperm ([BBC article](#))

worked as a Research Fellow in Mathematics at Trinity Hall, University of Cambridge, before going back to Oxford as a Robert Hooke Research Fellow. In 2015, he was appointed lecturer in Applied Mathematics at the University of York, where he was the External Relations and Public Engagement officer, member of the Partnership and Enterprise Committee, Graduate tutor in Mathematical Biology, among other roles. Outside York, He is a member of the UKRI EPSRC Prioritisation Panel in UK, and an honorary Fellow at the

Institute of Fish Culture and Hydrobiology at University of South Bohemia, Czech Republic. Hermes is a former member of the EPSRC Early Career mathematics forum, founded “to identify future leaders in the Mathematical Sciences”. Hermes is also the first mathematical fertility expert registered at the Science Media Centre (SMC), to which British press refers when publishing on scientific research. To date, his research has generated significant international recognition, with over than 50 worldwide media press releases and TV interviews, including BBC, Science, New Scientist and Discovery Channel. This year, Hermes is joined the vibrant School of Engineering at the University of Bristol as a Senior Lecturer in Applied Mathematics and Data Modelling.