



Prof. Mark Broom (Mark.Broom.1@city.ac.uk)
City University of London, UK.

Professor Mark Broom received his PhD from University of Sheffield (1993) in the United Kingdom. His research interests are in Mathematical Biology, in particular Evolutionary Game Theory. He is a Professor of Mathematics at City, University of London in the United Kingdom.

Talk Title and Abstract

Using evolutionary game theory to explain puzzling biological problems

Biology is full of interesting problems where observed animal behaviour contradicts expectations. Why do heavily armed animals engage in ritualistic contests without using their full violent potential when competing for valuable resources? How and when can cooperative behaviour emerge, and when is it simply every individual for itself? Why is the sex ratio of many animals so close to 1:1? Evolutionary Game Theory produces clear and relatively simple answers to these questions. It can, however, be applied in so many more scenarios. In this talk we do not have time to do justice to this great breadth of application, but address the three problems above, and also consider one more problem of specific current scientific interest, the vaccination of populations against disease. Where individuals have the choice to accept or decline a vaccination, what strategy should they adopt?