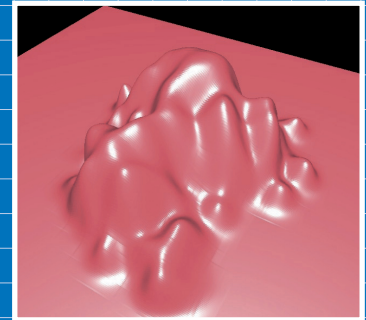**Berlin Mathematical School**

BMS Kovalevskaya Colloquium

Friday, 2 July 2010, 2:15 pm

Tea before the lecture starts at 1 pm

BMS Loft, Urania
An der Urania 17, 10787 Berlin

Alison Etheridge (U Oxford):

"The pain in the torus: modelling populations in a spatial continuum"

Since the pioneering work of Fisher, Haldane and Wright at the beginning of the 20th Century, mathematics has played a central role in theoretical population genetics. One of the outstanding successes is Kingman's coalescent. This process provides a simple and elegant description of the way in which individuals in a population are related to one another. However, it only really applies to very idealised `unstructured' populations in which every individual experiences identical conditions. Spurred on by the need to interpret the recent flood of DNA sequence data, an enormous industry has developed that seeks to extend Kingman's coalescent to incorporate things like variable population size, natural selection and spatial and genetic structure. But a satisfactory approach to populations evolving in a spatial continuum has proved elusive. In this talk Alison Etheridge examines Kingman's coalescent and some of its variants and, if time permits, describes a new approach to modelling populations in a continuum.