



Research and Innovation Staff Exchange (RISE)

Microelements in Life Expectancy and Ageing

(MI LEAGE)

Course in mathematics and modelling

December 12th, 15h Paris time

zoom link: https://us06web.zoom.us/j/86146544758?pwd=Smg1RjZ2TTJoSGtsSFZCZGhrc2dFQT09

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The estimation of iron bioavailability using mathematical models - how it's evolved over time

Jack Dainty, Norwich Medical School, University of East Anglia.

The calculation of absorption (bioavailability) of micronutrients is important to establish recommended intakes for populations. The combination of stable isotope labelled meals as 'tracers' and compartmental modelling has been used as an estimation technique for many years but the talk will also showcase the use of unlabelled (natural) iron as well as population methods that rely on probability density functions.

Computational modeling of cardiac electrophysiology: from ion channels to virtual patients

Jordi Heiman, Department of Cardiology, Maastricht University, The Netherlands.

Computational modeling is playing an increasingly important role in cardiology. Mechanistic models described by systems of non-linear ordinary differential equations can integrate experimental data and biophysical principles. This lecture provides a short introduction into the history and methodology of mechanistic computational modeling of cardiac electrophysiology and highlights modern real-world applications of these models.

Parameter Estimation Methods

Alexander Matasov, Faculty of Mechanics and Mathematics, Lomonosov Moscow State University

Solving many applied problems in engineering, economics, biology, etc. is reduced to estimating the parameters of certain functions under measurement errors. The report presents three estimation methods: (1) least squares method; (2) least absolute deviations method; (3) guaranteeing estimation method. The formulation of the problems and the features of these approaches to estimation are discussed.





