



COLLOQUIUM
DEPARTAMENTO DE MATEMÁTICAS
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Mathematics and life sciences: A moving boundary

Abstract:

During the last decades Mathematics has gained a solid ground in Biology and Medicine where its presence, which was customarily overlooked in the past, has been steadily approaching the centre stage. Indeed, in many biomedical research groups worldwide, Mathematics has become a key tool which complements experimental techniques in the analysis and interpretation of biomedical data. Several factors can be recognized behind this expanding role of Mathematics in Life Sciences. Paramount among these are the increasing need of bioscientists for efficient data processing systems, and a slow, but steady, change in attitudes towards Mathematics from scientists in general (including mathematicians).

In this lecture, I shall describe only a few of the various ways in which Mathematics is currently cooperating with Biology and Medicine to gain insight about significant biological issues , both at a fundamental and at an applied level. To this end, examples will be discussed taken from several active research areas, including the formation of the vascular system in embryos, the study of invasive processes, both physiological (ossification) and pathological (tumour growth) and the role of optimization in Radiotherapy, among others. Besides stressing the contributions of Mathematics to a better understanding of important biological questions, attention will also be paid to the feedback effects of the consideration of biological problems in the evolution of large areas of Mathematics.

Hora: 10:45

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