MathematicS In Action

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Introduction

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Introduction

At first glance, mathematics and life sciences may appear to be two distant fields. However, history has shown the importance of mathematical modeling in understanding and analyzing biological phenomena.

Research has evolved and developed considerably recently, with numerous collaborations between mathematicians and biologists, stimulating both communities. The interface is very active and diversified today, from highly theoretical questions to the most applied aspects. This interface is stimulated by the need for and complexity of models and technological advances and the influx of data.

In this special issue of the recent SMAI Math's in Action open journal, we aim to show the vitality and scientific richness of the work being done today at this interface, where original mathematical results have helped to answer questions raised by biological, ecological or medical applications.

Indeed, the reader will find a wide range of applications in this issue, from epidemiology to medical imaging, from subcellular biology to organ physiology. But also a wide range of mathematical tools from probability to statistics, from mathematical analysis of partial differential equations to theoretical computer science using formal methods, from theory to numerics.

We would like to dedicate this special issue to Elisabeta Vergu, whose research and scientific leadership have contributed significantly to the development of the interface between mathematics and epidemiology.

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