INNOVATIVE MODELING AND COMPUTATIONAL APPROACHES FOR LIVING SYSTEMS AND PRECISION MEDICINE

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ABSTRACT

The progress in understanding living systems in the past decades achieved by medicine and biology has stimulated a significant technological advancement also supported by mathematical and computational methods. The synergy between biology, medicine, mathematics, and statistics, profoundly impacts the society through an increasing customization of healthcare (embracing medical decisions, treatments, practices, or products) that is generally called precision medicine. In turn, the development of precision medicine impacts the whole society, by promoting a more sustainable healthcare system.

The aim of this session is to collect contributions that highlight the impact of mathematical modelling, computational methods, statistical data analysis and machine learning to improve the understanding of living systems and foster the development of precision medicine. We are particularly interested, but not restricted to, the development of precision healthcare for oncology, diabetes, cardiovascular diseases, and neurodegenerative diseases.

We welcome researches addressing the fundamental methodologies, their applications, the collection and analysis of medical and biological databases as well as the discussion of the policies that regulate the technology transfer in this area.

The target of this session are fundamental scientists (such as mathematicians, physicists, or biologists), medical partictioners and all scientists involved in the technology transfer from mathematics and biology to medicine. We will promote this transdisciplinary participation through the selection of speakers through a broad area of disciplines.