

Proceeding of the Third International Conference of the French-Speaking Society for Theoretical Biology

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The definition of theoretical biology may be controversial. Indeed, the basic definition of theoretical biology classifies it as biomathematics. It assumes that theoretical biology is divided into, at least, four subfields: Biological mathematical modeling, Relational biology/Complex systems biology, Bioinformatics and Biomodeling Computation. In epistemology, theoretical biology is defined as the action of “theorizing” life sciences. It aims to introduce laws; it highlights some biological phenomena and makes possible the identification of new biological principles. The latter definition does not imply a direct relationship with mathematics. In both cases, theoretical biology is a strongly multidisciplinary science, for the tools imported from other science and for the shared ideas.

This controversy was one of the main concerns of the French-speaking Society for Theoretical Biology (SFBT). In 1985, it succeeded the Association for the development of Theoretical Methods for Biology (AMTB). The initial purpose of AMTB was to organize Schools; rapidly it took a more general objective: “the development of methods and theoretical formalisms useful for fundamental biological research and its practical applications”¹.

The origin of SFBT Conferences comes from 1975, when Jean-Henri Maresquelle², used to invite colleagues with different scientific backgrounds to round tables, twice a year. These meetings lead to scientifically fruitful multidisciplinary

¹ Journal Official of France, November 15, 1981, p. 9999

² Professor at the University of Strasbourg, born in 1898 and died in 1977.

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discussions on biology related scientific themes. These round tables were called the Maresquelle club for Theoretical Biology and remained active until 1984. Within this context, Pierre Delattre and Michel Thellier made in 1978³ the first Conference on models. Furthermore, two prizes were created in order to encourage young scientists, the P. Delattre prize in 1994 and the R. Thom prize in 2007. The latter is given during the International Conference of the SFBT.

Thirty four years later, the Third International Conference of the SFBT held in Tunis from June 17–19, 2010, continue in this scope. The conference brought 70 participants from five different countries⁴. There were 33 oral presentations of 20 min and 6 plenary lectures of 40 min. The R. Thom prize was given to two young promising researchers, Chata Sanogo from University of Kenitra (Morocco) and Emna Hrigua from University of Tunis el Manar (Tunisia), underling the role of women in science and education and their significant contribution to the development of Universities especially in third world countries.

The present proceeding comes with twelve articles on theoretical biology, ranging from the molecular to the population scale and passing through gene, cellular and tissue scale. Articles were grouped into three different categories depending on the biological scales. These articles were proceeded by an article of L. Almeida et al., who discuss the interaction between different biological scales.

1. From molecule to cell: This part groups three articles: The articles of Minh-Uyen Dao Thi et al., Abdessalem Chekhchoukh et al. and Nicolas Glade.
2. From cell to individual: This part groups four articles: The articles of Marie-Claire Verdus et al., Remis Costalat et al., Nadia Khalfa et al. and Linda El Alaoui et al.
3. From individual to ecosystem: This part groups five articles: The articles of Marco Marva et al., Mohamed Khaladi et al., Pierre Auger et al., Sanogo Chata et al. and Chakib Jerry et al.

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³ Conference proceedings in the series Interdisciplinary Researches, Maloigne, 1979, p. 748.

⁴ Algeria, Canada, France, Mali, Mauritania, Mexico, Morocco, Spain, and Tunisia.