

# BtBs Seminars

## Biotechnology and Biosciences Seminars



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## Modeling glucose metabolism with FSDEs

Complex biological phenomena, of very concrete interest from a biomedical point of view, lend themselves to mathematical modeling. The clinical practitioner would like to extract meaningful features from available data, leading to potential adjustments in diagnosis, prognosis or therapy. However, it often happens that the available clinical data, even if abundant in quantity, carry a modest information content, making detailed models unidentifiable. This is the case, for example, of trans-cutaneously measured glycemia, where besides glycemia itself (possibly decaying by first-order elimination) also unobserved factors (insulinemia, other hormones) may exert higher order effects. The problem is here further complicated by the fact that random events (food intake, exercise, emotions) may affect glycemia as well. Standard mathematical modeling tools are inadequate to deal with this kind of problems. This presentation will exemplify the use of simple Fractional Stochastic Differential Equation (FSDE) models of glycemic control, with the attendant approaches to parameter estimation in this framework.



**Thursday**  
**April 16, 2026**



**U3-BIOS building**  
**room U3-09**



**4.30 pm**  
**to 5.30 pm**

**Host:**  
**Pasquale Palumbo**



The certificates of attendance for the seminar are also valid for the acquisition of CFU credits  
For information, please visit the seminar's webpage

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