27 MARCH 2026, 14:30-16:30
SEMINAR ROOM, POLO FERRARI 2

This seminar combines **two complementary studies on tumour growth control** within a Chemical Reaction Network framework.

First, we analyze alternative therapy strategies in a deterministic setting.

Constant drug infusions exhibit structural limitations: eradication depends on the initial tumour size and may be unattainable for large burdens. In contrast, state-feedback control laws can systematically steer the system toward tumour elimination.

Second, we investigate the stochastic counterpart of the model, which becomes crucial when the tumour population is small.

Unlike the deterministic case, the stochastic formulation admits finite-time extinction.

We derive analytical expressions for the eradication probability and, when extinction is almost sure, for the mean eradication time.

Speaker: Pasquale Palumbo

Associate Professor of Systems and Control Engineering
University of Milano-Bicocca, Department of Biotechnology and Biosciences

Control and eradication in tumour growth models: deterministic vs stochastic perspectives

DII SEMINARS