

GLOBAL DYNAMICS OF A PIECEWISE SMOOTH SYSTEM FOR BRAIN LACTATE METABOLISM

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In this presentation, we study a piecewise smooth dynamical system inspired by a previous reduced system modeling compartmentalized brain metabolism. The piecewise system allows the introduction of an autoregulation induced by a feedback of the extra- cellular or capillary Lactate concentrations on the Capillary Blood Flow. New dynamical phenomena are uncovered and we discuss existence and nature of two equilibrium points, attractive segment, boundary equilibrium and periodic orbits depending of the Capillary Blood Flow.