

# Meeting on Computational and Analytic Problems in Spectral Theory

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## Abstract of Talk

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### STABILITY OF STATIONARY SOLUTIONS FOR REACTION-DIFFUSION-FLOWS ON FINITE METRIC GRAPHS

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The Lyapunov stability of stationary solutions for the flow governed by reaction-diffusion-equations on the edges of a metric graph  $G$  will be discussed under continuity and weighted Kirchhoff transition conditions at the vertices:

$$(1) \quad \begin{cases} u \in \mathcal{C}(G \times [0, \infty)) \cap \mathcal{C}_K^{2,1}(G \times (0, \infty)), \\ \partial_t u_j = \partial_j^2 u_j + f(u_j) & \text{on the edges } k_j, \\ (K) \quad \sum_j d_{ij} c_{ij} \partial_j u_j(v_i, t) = 0 & \text{at the vertices } v_i. \end{cases}$$

Besides some general exclusion criteria based on the spectral properties of the linearized differential operators, it will be shown that there are no stable stationary non constant solutions of the evolution problem (1). The results presented here stem from a joint work with José Antonio Lubary, UPC Barcelona, Spain.