Title: Comparison of several reaction and diffusion models of growth factors in angiogenesis

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abstract:
We compare three types of mathematical models of growth factor reaction and diffusion in angiogenesis: surface-reaction, volume-reaction, and line-reaction models. Firstly, we explore the analytical properties of these models including solution regularity and positivity. Secondly, we compare the programming complexity and computational cost of these models in numerical implementations. Finally, we quantitatively compare these models in the prediction of the growth factor dynamics. This work is a collaboration with Fang Li (Center for Partial Differential Equations, East China Normal University, China).