

Multiscale boundary conditions applied to drug-eluting stents

E. Gudiño (UNESP) egudino@gmail.com, C. Oishi (UNESP), A. Sequeira (Universidade de Lisboa)

Resumo/Abstract:

A stent is an expandable metallic tube used to open an artery that has been narrowed due to the presence of an atherosclerotic plaque. In this talk we propose analytic solutions of a 1D model for non-Fickian diffusion and dissolution. We use this solution to provide suitable boundary conditions to replace the problem of mass transport in the coating of the drug-eluting stent. With this approach, we reduced the computational cost of performing numerical simulations in realistic 3D stent geometries.

Keywords: Drug delivery, non-Fickian diffusion, drug-eluting stents

References

- [1] E. GUDIÑO, A. SEQUEIRA, *3D mathematical model for blood flow and non-Fickian mass transport by a coronary drug-eluting stent*, Appl. Math. Model
- [2] E. GUDIÑO, A. SEQUEIRA, *Multiscale boundary conditions for drug dissolution applied to drugeluting stents*, submitted for publication
- [3] E. GUDIÑO, C.M. OISHI, *Multiscale boundary conditions for non-Fickian diffusion applied to drug-eluting stents*, submitted for publication