

COUPLED AND MULTISCALE COMPUTATIONAL PROBLEMS IN BIOENGINEERING

ALAIN KASSAB^{*} AND EDUARDO DIVO[†]

^{*} Mechanical and Aerospace Engineering Department
University of Central Florida
Orlando, Florida 32186-2450
Alain.Kassab@ucf.edu

[†] Mechanical Engineering Department
Embry-Riddle Aeronautical University
Daytona Beach, FL 32114
divoe@erau.edu

ABSTRACT

Organizers of the Invited Session (IS) entitled “Coupled and Multiscale Computational Problems in Bioengineering” seek contributions from researchers engaged in computational aspects of bioengineering problems that involve modelling of coupled and multiscale problems. Topics of interest may include computational models involving multi-physics, coupling of 3D and lumped (0D) models in hemodynamics and biomechanics as well as modelling across macro/micro/nano length scales and time scales. Submission presenting novel algorithms and computational methodologies in finite volume, finite elements, meshless methods, and boundary elements are encouraged. Examples include applications in surgical treatment planning and assessment in heart disease [1,2], coupled modelling of cardiac mechanics and electrophysiology [3], and modelling at the molecular and organ levels [4].

REFERENCES

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- [3] Zhang, Y. et al , "Multi-scale Modeling of the Cardiovascular System: Disease Development, Progression, and Clinical Intervention," *Annals of Biomedical Engineering*, 2016 Sep; 44(9): 2642–2660.
- [4] Multiscale Modelling in Biomechanics and Mechanobiology, De, S., Hwang, W., and Kuhl, E. (editors), Springer Verlag, New York, 2015.