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FSI ANALYSIS OF A BIOABSORBABLE CORONARY STENT

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Bioabsobable coronary stents, made of biodegradable metal or polymer, were introduced in clinics and have been commercialized for several years. While promising clinical outcomes have been shown [1], their biomechanical characteristics, such as the wall strain and haemodynamics within the stented region, are not well understood though they are considered to play an important role in restenosis and thrombogenesis [2, 3].

We present a fluid-structure interaction (FSI) analysis of a bioabsorbable polymer stent, compare its FSI response to that of a conventional metallic stent, and highlight the key differences between them. This has potential for eventually contributing to better patient management with this new type of stent.

Our computational FSI approach in this study will be based on the Deforming-Spatial-Domain/Stabilized ST (DSD/SST) method [4-8], special techniques for arterial FSI [9], and additional special techniques, including those targeting arterial dynamics [10,11].

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