Multi-Scale Simulation of Breast Tissue

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ABSTRACT:
Recursive partitioning has been a state-of-the-art simulation technique for fast generation of software breast phantoms on radiological scale. This technique, based on geometrical modeling, provides for the structures such as breast skin, Cooper’s ligaments, adipose and glandular tissue and calcifications. Recently, utilizing the inherent speed and versatility of recursive partitioning, we proposed multi-scale simulation of breast tissue. In this presentation, we consider simulation at the histological scale including adipose cells, fibroglandular tissue and acini. We demonstrate preliminary results and discuss the role of biomedical imaging and stereology in improving realism of simulated features.