

# Evolution of Structure in 3D; from Aeroengines to Veloceraoptors

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X-ray microtomography enables one to monitor the evolution of structure in three dimensions over time. In this talk I will show how this can enable us to follow the evolution of structure during fatigue and stress corrosion crack growth, creep cavitation of nuclear pressure vessel steels, fracture of bone and carbon fibre composites, the behaviour of negative Poisson's ratio foams, foam formation and to monitor other phenomena. In addition I will show how microtomography can lead to microstructurally faithful models allowing the prediction of structural evolution over inaccessible timescales, and to look forward or backward in time.