

Frank Krauss – HEP Seminar 1/12/2021  
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Title: Individual-Based Epidemiology Simulations

Abstract: We constructed a detailed digital twin of the UK population, with supreme social and geographical granularity, representing 55 million residents in England and Wales and tracing their daily movements and activities. The infection is propagated through the virtual population through simulated social contacts, and the progress of the disease in infected individuals and their trajectory through the healthcare system is then simulated, based on public health data. We resolve the spatio-temporal development of the disease spread through the population in great detail and are able to find non-trivial correlations of infection and fatality rates with a variety of societal factors. Our model has been proven in the midst of the current crisis and is currently being used by NHS-England's COVID-19 response team to inform their strategic and operational planning.