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Holography of Cells fitted to DDA scattering solutions

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Understanding the dynamics of cells is important to many areas of biophysics. Digital Holography offers a way to observe these dynamics at high speed, in 3D, in relatively native conditions. I will present work studying single cell dynamics through in-line digital holography. To quantify the motion of subcellular components, we fit our holograms to models of scattering based on the Discrete Dipole Approximation. In particular, we apply the technique to determine the the fluctuations of the cell membrane. The technique allows us to interrogate the cells over a broad range of time scales, from 10^{-3} s up to the time scale for cell division.

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