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Relativistic effects in N-body simulations of cosmic large-scale structure

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As our advanced telescopes produce ever larger and deeper maps of our Universe we need to consider that observations are taken on our past light cone and on a spacetime geometry that is pervaded by small distortions. A precise understanding of the weak-field regime of General Relativity allows one to model these aspects consistently within N-body simulations of cosmic structure formation. The subtle relativistic effects in cosmic structure can tell us how gravity operates on the largest scales that we observe and may hold the key to unravelling the mystery of dark energy.

Primary author: Dr ADAMEK, Julian (Queen Mary University of London)

Presenter: Dr ADAMEK, Julian (Queen Mary University of London)

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