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## A BPS Road to Holography: Decoupling Limits and Non-Lorentzian Geometries

*Wednesday 13 August 2025 15:15 (45 minutes)*

I will discuss decoupling limits that lead to matrix theories on D-branes, focusing on their BPS nature and the emergence of non-Lorentzian target space geometries. In these limits, D-branes experience instantaneous gravitational forces, and when applied to curved geometries, it is shown that a single decoupling limit leads to the AdS/CFT correspondence. By applying two such limits, we generate new holographic examples, including those with non-Lorentzian bulk geometries. I will demonstrate that reversing these decoupling limits corresponds to deformations of matrix theories, connecting them to the  $\overline{TT}$  deformation in two dimensions. These deformations provide a new perspective on the near-horizon brane geometry and lead to  $\overline{TT}$ -like flow equations for the Dp-brane DBI action. Finally, I will comment on a wider duality web, that exhibits relationships between matrix theories, non-relativistic string theory, M-theory uplifts along with corners that connect dS holography to Carrollian symmetry.

**Presenter:** OBERS, Niels