

## It turns out we're all Action Heroes: Realizing Double Copy at the Operator Level

*Thursday 26 June 2025 10:30 (45 minutes)*

Scattering amplitudes have long revealed dualities, like color-kinematics and the double copy, that are obscured in conventional Lagrangians. This talk unveils a constructive path to elevate amplitudes to the defining data of actions. We'll see how to promote color-dual numerators directly to operators, systematically derive the full Einstein-Hilbert action from Yang-Mills components, and explore how this extends to a state-level picture of quantum gravity and all- $\alpha'$  string operators.

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