Bologna Workshop on:
CFT AND INTEGRABLE MODELS
and their applications from gauge/gravity dualities to statistical mechanics and quantum information

Contribution ID: **98** Type: **Talk (30 min)**

Regge spectroscopy of higher twist states in $\mathcal{N} = 4$ supersymmetric Yang-Mills theory

Thursday, 7 September 2023 14:30 (30 minutes)

We study a family of higher-twist Regge trajectories in $\mathcal{N} = 4$ supersymmetric Yang-Mills theory using the Quantum Spectral Curve. We explore the many-sheeted Riemann surface and show the interplay between the higher-twist trajectories and the several degenerate non-local operators, called (near-)horizontal trajectories, that have a strong connection to light ray operators, objects omnipresent in 4-dimensional Minkowskian CFTs.
We resolve the encountered degeneracy analytically by computing the first non-trivial order of the Regge intercept at weak coupling, which exhibits new behaviour: it depends linearly on the coupling. This is consistent with our numerics, which interpolate all the way to strong coupling.

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Session Classification: Bologna Workshop CFT-IM