Light Cone 2021: Physics of Hadrons on the Light Front



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## Interpolating conformal algebra between the instant form and the front form of relativistic dynamics

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The instant form and the front form of relativistic dynamics introduced by Dirac in 1949 can be interpolated by introducing an interpolation angle parameter  $\delta$  spanning between the instant form dynamics (IFD) at  $\delta = 0$  and the front form dynamics, which is now known as the light-front dynamics (LFD) at  $\delta = \frac{\pi}{4}$ . We extend the Poincar\'e algebra interpolation between instant and light-front time quantizations (C.-R. Ji and C. Mitchell, Phys. Rev. D 64, 085013 (2001)) to the conformal algebra. Among the five more generators in the conformal algebra, only one generator known as the dilatation is kinematic for the entire region of the interpolation angle ( $0 \le \delta \le \frac{\pi}{4}$ ). We find that one more generator from the Special Conformal Transformation (SCT) becomes kinematic in the light-front limit ( $\delta = \frac{\pi}{4}$ ), i.e. the LFD.

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