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## Superconformal Quantum Mechanics and Emerging Holographic QCD

*Tuesday, 14 April 2015 14:20 (30 minutes)*

The observed light-hadron spectrum will be described from a superconformal semiclassical approximation to light-front QCD and its embedding in AdS space. This procedure uniquely determines the confinement potential for arbitrary spin. To this end, we will show that wave equations in AdS space are dual to light-front supersymmetric quantum mechanical bound-state equations in physical space-time. The specific breaking of dilatation invariance within the supersymmetric algebra explains hadronic properties common to light mesons and baryons, such as the observed mass pattern in the radial and orbital excitations, as well as their distinctive and systematic features. Furthermore, the generalized supercharges connect the baryon and meson spectra. The lowest-lying state, the pi-meson, is massless in the chiral limit and has no supersymmetric partner. Preliminary results extending the supersymmetric relations across the heavy-light hadronic spectrum will also be presented.

**Presenter:** DE TERAMOND, Guy

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