Contribution ID: **57**   Type: **Talk**

Singularities, horizons, firewalls and local conformal symmetry

Thursday, 23 July 2015 19:30 (1 hour)

We rephrase the einstein-Hilbert theory of gravity by focusing on local conformal symmetry as an exact, but spontaneously broken symmetry of nature. We then put a constraint on the theory by imposing regularity of the action as the dilaton field variable tends to 0, which is a constraint on the small distance behaviour. This appears to turn a black hole into a regular, topologically trivial soliton without singularities, horizons of firewalls, but many questions remain.

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Session Classification: Schwarzschild Memorial lecture

Track Classification: Keynotes