

## U-gravity for $SL(N)$

*Thursday 13 August 2015 14:00 (1 hour)*

We construct a duality manifest gravitational theory for the special linear group,  $SL(N)$  with  $N \neq 4$ . The space-time is formally extended, to have the dimension  $2N(N-1)$ , yet is gauged. Consequently the theory is subject to a section condition. We introduce a semi-covariant derivative and a semi-covariant Riemann curvature, both of which can be completely covariantized after symmetrizing or contracting the  $SL(N)$  vector indices properly. Fully covariant scalar and Ricci curvatures then constitute the action and the Einstein equation of motion. For  $N \geq 5$ , the section condition admits duality inequivalent two solutions, one  $(N-1)$ -dimensional and the other three-dimensional. In each case, the theory can describe not only Riemannian but also non-Riemannian backgrounds.

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