Universal properties of Kaluza-Klein gravitons

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Vacua of different gaugings of $D = 4 \mathcal{N} = 8$ supergravity that preserve the same supersymmetries and bosonic symmetry tend to exhibit the same universal mass spectrum within their respective supergravities. For AdS₄ vacua in gauged supergravities that arise upon consistent truncation of string/M-theory, we will show in this talk that this universality is lost at higher Kaluza-Klein levels, but still present in a milder form, as certain sums over a finite number of states remain universal. Further, we propose an SL(8)-covariant mass matrix for Kaluza-Klein gravitons which is valid for all the AdS₄ vacua considered and resembles those for the supergravity fields at level zero. The universality of mass sums is related to the trace of this mass matrix.

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