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Spherical T-duality: moving towards physics

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Abstract:

T-duality, developed by Buscher in the 80's/90's, gives a prescription for relating two a priori different string backgrounds. More specifically, it gives a procedure for taking a string background with a $U(1)$ isometry and generating a new solution which is physically indistinguishable from the original background. The topology of the original background and its dual can be different, and the mathematical description of how the topologies are related goes by the name topological T-duality. This mathematical description has a natural generalisation, known as spherical T-duality, which involves the replacement $U(1) \rightarrow SU(2)$. It is currently unclear whether this mathematical generalisation is realised as a duality within string theory/M-theory.

In this talk, I will give a pedagogical introduction to topological T-duality, and discuss the generalisation to spherical T-duality. If time permits, I will discuss work (in progress) towards finding a physical realisation of this putative duality.

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