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No-Go theorems for ekpyrosis from ten-dimensional supergravity

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In this talk, we present whether the new ekpyrotic scenario can be embedded into ten-dimensional supergravity. We use that the scalar potential obtained from flux compactifications of type II supergravity with sources has a universal scaling with respect to the dilaton and the volume mode. Similar to the investigation of inflationary models, we find very strong constraints ruling out ekpyrosis from analysing the fast-roll conditions. We conclude that flux compactifications tend to provide potentials that are neither too flat and positive (inflation) nor too steep and negative (ekpyrosis).

Primary author: UZAWA, Kunihito (Kwansei Gakuin University)

Presenter: UZAWA, Kunihito (Kwansei Gakuin University)

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