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Scalar fields on anti-de Sitter background

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Because of the implication of anti-de Sitter spacetime instability, there has been much interest recently in scalar fields coupled to gravity when there is a negative cosmological constant. It is an interesting question how different the scalar field evolution is when the background is a fixed AdS metric. On the other hand, it is known that self-interacting massive real scalar fields on flat Minkowski background can form long living oscillating localized objects, called oscillons. In the flat background case these objects radiate energy extremely slowly, in a rate which is exponentially suppressed in terms of the central amplitude. As a result their oscillation frequency slowly increases. On AdS background the situation is different, because then there are localized exactly time-periodic solutions for massive or massless linear Klein-Gordon fields. In my talk I plan to discuss the influence of the AdS background on the structure and stability of oscillons.