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$\mathcal{N} = (0, 2)$ AdS_3 solutions of type IIB and F-theory with generic fluxes. (English)

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Summary: We consider the most general AdS_3 solutions of type IIB supergravity admitting a dynamical SU(3) structure and preserving $\mathcal{N} = (0, 2)$ supersymmetry. The analysis is broken into three distinct classes depending on whether the dynamical SU(3) structure degenerates to a strict SU(3) structure. The first class we consider allows for a holomorphically varying axio-dilaton consistent with the presence of (p, q) 7-branes in addition to D3-branes and (p, q) 5-branes. In the remaining two classes the axio-dilaton may vary but does not do so holomorphically. The second class of solution allows for 5-branes and 1-branes but no D3-branes, whilst in the final class all branes can be present. We illustrate our results with examples of such solutions including a new infinite family with all fluxes but the axion turned on.

MSC:

83E50 Supergravity
81T60 Supersymmetric field theories in quantum mechanics
81T30 String and superstring theories; other extended objects (e.g., branes) in quantum field theory

Keywords:

AdS-CFT correspondence; flux compactifications

Software:

GammaMaP

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