

# Geometrical insights from supergravity constructions

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We study the scalar geometries of various  $5d$  and  $4d$  supergravity and supersymmetric field theories. The geometries involved are called special real, special Kähler, hyper-Kähler and quaternionic Kähler. Using dimensional reduction, one can relate these geometries and obtain surprising geometrical results: From each complete (projective) special real manifold, one can construct an explicit complete quaternionic Kähler metric and even a one-parameter family of deformations thereof, which corresponds to string loop corrections in the corresponding string theory compactification.