



# Variations of gwistor space

Rui Albuquerque

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We study natural variations of the  $G_2$  structure  $\{\sigma\}_0 \in \{\Lambda\}^3_+$  existing on the unit tangent sphere bundle  $SM$  of any oriented Riemannian 4-manifold  $M$ . We find a circle of structures for which the induced metric is the usual one, the so-called Sasaki metric, and prove how the original structure has a preferred role in the theory. We deduce the equations of calibration and cocalibration, as well as those of  $W_3$  pure type and nearly-parallel type.

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