

## Metric polynomial structures on generalized geometry

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**Abstract.** In this document, we study the interaction between different geometric structures defined on the generalized tangent bundle  $\mathbb{T}M := TM \oplus T^*M \rightarrow M$ . Specifically, we study various generalized polynomial  $\alpha$ -structures  $\mathcal{J}$  with respect to different metrics  $\mathcal{G}$  on  $\mathbb{T}M$  when  $\mathcal{J}^2 = \alpha Id$ ,  $\mathcal{G}(\mathcal{J}\cdot, \mathcal{J}\cdot) = \varepsilon \mathcal{G}(\cdot, \cdot)$ , for  $\alpha, \varepsilon \in \{+1, -1\}$ . Besides, we study the commutation or anti-commutation of generalized polynomial structures, showing that a generalized Kähler structure can be understood as a pair of commuting generalized almost complex structures.

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