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**On Homogeneous Polynomial Solutions
of the Moisil-Théodoresco System in \mathbb{R}^3**

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Abstract. The space of homogeneous polynomial solutions of degree k of the Moisil-Théodoresco system in \mathbb{R}^3 is isomorphic to the real vector space $\text{MT}^+(\mathbb{R}^3; \mathbb{R}_{0,3}^+; k)$ of homogeneous $\mathbb{R}_{0,3}^+$ -valued polynomial null-solutions of degree k of the Cauchy-Riemann operator D_x in \mathbb{R}^3 . Hereby $\mathbb{R}_{0,3}^+$ is the even subalgebra of the Clifford algebra $\mathbb{R}_{0,3}$. A structure theorem is proved for the elements $W_k \in \text{MT}^+(\mathbb{R}^3; \mathbb{R}_{0,3}^+; k)$, based essentially on conjugate harmonicity, and a general procedure is elaborated for constructing bases of $\text{MT}^+(\mathbb{R}^3; \mathbb{R}_{0,3}^+; k)$.

Keywords. Moisil-Théodoresco system, homogeneous monogenic polynomials, harmonic potentials.

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