Representation of rotation group and spherical functions for space-time multivectors in Clifford algebra

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Multivectors are scalars, vectors, and fully antisymmetric tensors. Representation of space-time multivectors in Clifford algebra or by hypercomplex numbers gives useful tool for theoretical and mathematical physics. In particular, this representation permits to consider the linear and nonlinear electrodynamics in coordinate-free space-time invariant form (see my articles [1, 2] and references contained therein).

Generators of rotation group in Clifford algebra formalism for space-time multivectors are presented. Corresponding multivector spherical functions are obtained.

References

[1] A. A. Chernitskii. Born-Infeld electrodynamics: Clifford number and spinor representations. *Int. J. Math. & Math. Sci.*, 31(2):77–84, July 2002; http://arxiv.org/abs/hep-th/0009121.

[2] A. A. Chernitskii. Source function and dyon's field in Clifford number representation for electrodynamics. *Advances in applied Clifford algebras*, 13(2):219–230, December 2003; http://arxiv.org/abs/hep-th/0401122.