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Wavelets for quantum gravity and divergence-free wavelets. (Letter to the editor). (English)

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Summary: We present an easy construction of L^2-orthonormal bases of divergence-free wavelets in two, four, and eight dimensions. Both wavelets of class C^M with exponential decay and wavelets of the Meyer type are constructed. The idea is extended to the construction of symmetric-tensor-valued, divergence-free, trace-free wavelets in four dimensions – of both types. Such orthonormal bases could be applicable to quantum gravity.

MSC:

42C40 Nontrigonometric harmonic analysis involving wavelets and other special systems
81V17 Gravitational interaction in quantum theory

Keywords:

symmetric tensor valued wavelets; L^2-orthonormal bases; divergence- free wavelets; exponential decay; trace-free wavelets; four dimensions

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