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Noncommutative products of Euclidean spaces

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We present natural families of coordinate algebras of noncommutative products of Euclidean spaces. These coordinate algebras are quadratic ones associated with an R-matrix which is involutive and satisfies the Yang-Baxter equations. As a consequence they enjoy a list of nice properties, being regular of finite global dimension. Notably, we have eight-dimensional noncommutative euclidean spaces which are particularly well behaved and are parametrised by a two-dimensional sphere. Quotients include noncommutative seven-spheres as well as noncommutative "quaternionic tori". There is invariance for an action of $SU(2) \times SU(2)$ in parallel with the action of $U(1) \times U(1)$ on a "complex" noncommutative torus which allows one to construct quaternionic toric noncommutative manifolds. Additional classes of solutions are disjoint from the classical case.

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