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On Three Constructions of Nanotori

There are three different approaches for constructing nanotori in the literature: one with three parameters suggested by Altshuler, another with four parameters used mostly in chemistry and physics, and one with three parameters used in computer science (known as generalized honeycomb tori).

Altshuler showed that his method gives all non-isomorphic nanotori, but this was not known for the other two constructions. We show that these three approaches are equivalent and give explicit formulas that convert parameters of one construction into the parameters of the other two constructions.