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*Toric asymptotically flat gravitational instantons*

I will discuss uniqueness and existence theorems for four-dimensional complete Ricci-flat, gravitational instantons with a torus symmetry that asymptotically approach flat  $S^1 \times \mathbb{R}^3$ . Such instantons are characterised by their rod structure, which is data that encodes the fixed point sets of the torus action. Furthermore, we establish that for every admissible rod structure there exists an instanton that is smooth up to possible conical singularities at the axes of symmetry. The proofs involve adapting the methods that are used to establish black hole uniqueness theorems.