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**"A formal proof of Sasaki-Murao algorithm"**

**Abstract:**

The Sasaki-Murao algorithm computes the determinant of any square matrix over a commutative ring in polynomial time. The algorithm itself can be written as a short and simple functional program, but its correctness involves nontrivial mathematics. We present this algorithm together with a new correctness proof formalized using the Coq proof assistant and the SSReflect extension.