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**Persi Diaconis\*** ([diaconis@math.stanford.edu](mailto:diaconis@math.stanford.edu)), Department of Mathematics, 450 Serra Mall, Bldg. 380, MC: 2125, Stanford, CA 94035. *Five Stories about the Metropolis Algorithm.*

The Metropolis algorithm is a mainstay of scientific computing, yet 50 years after its introduction, useful analysis of roughly real problems is almost non-existent. I will (1) explain the algorithm, (2) characterize it as a  $L'$  projection, (3) show some of its magical algebraic properties, (4) give first results for the original problem of packing discs in a box, and (5) relate an infinite collection of open problems.

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