# ALGORITHM 488: A GAUSSIAN PSEUDO-RANDOM NUMBER GENERATOR [G5]

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## Abstract

We present an algorithm GRAND for generating normally distributed pseudo-random numbers, assuming the existence of a source of uniform random numbers. The method is exact, apart from the effect of rounding errors. The idea of using a rejection technique to avoid any elementary function evaluations is due to Von Neumann [4] and Forsythe [3], but our implementation requires less uniform samples per result than previous implementations. In fact, only about 1.38 uniform samples are required per normal variate.

## Comments

Only the Abstract is given here. The algorithm appeared as [1]. It is still considered one of the fastest algorithms for generating normal random variates on sequential computers. Other methods are preferable on vector processors [2].

### References

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