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Language : Fortran **Revised:**

Random Three-Dimensional Vectors

OBSOLETE

Please note that this routine has been obsoleted in CNL 223. Users are advised not to use it any longer and to replace it in older programs. No maintenance for it will take place and it will eventually disappear.

Suggested replacement: RN3DIM (V131)

RAN3D generates random vectors, uniformly distributed over the surface of a sphere of a given radius.

Structure:

SUBROUTINE subprogram
User Entry Names: RAN3D
External References: NRAN (V105)

Usage:

```
CALL RAN3D(X,Y,Z,XLONG)
```

X,Y,Z (REAL) A random 3-dimensional vector of length XLONG.

XLONG (REAL) Length of the vector (to be specified on entry).

Method:

A random vector in the unit cube is generated using NRAN (V105) and is rejected if it lies outside the unit sphere. This rejection technique uses on average about 6 random numbers per vector, where only two are needed in principle. However, it is faster than the classical two-number technique which requires a square root, a sine, and a cosine.

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