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Language : Fortran
Library: MATHLIB
Submitted: 01.03.1968
Revised: 27.11.1984

Rotate a Three-Dimensional Polar Coordinate System

`POLROT` calculates the values of θ' and ϕ' of the coordinate system $S'(\theta', \phi', r)$, obtained by rotation of the 3-dimensional polar coordinate system $S(\theta, \phi, r)$ about any axis $(0 \leq \theta \leq \pi, 0 \leq \phi \leq 2\pi)$.

Structure:

`SUBROUTINE` subprogram
User Entry Names: `POLROT`

Usage:

```
CALL POLROT(THETA,PHI,THPRIM,PHPRIM,THAX,PHAX,ROTANG)
```

`THETA`	(`REAL`) Angle θ in the old system $S(\theta, \phi, r)$.
`PHI`	(`REAL`) Angle ϕ in the old system $S(\theta, \phi, r)$.
`THPRIM`	(`REAL`) Angle θ' in the new system $S'(\theta', \phi', r)$.
`PHPRIM`	(`REAL`) Angle ϕ' in the new system $S'(\theta', \phi', r)$.
`THAX,PHAX`	(`REAL`) Angles defining the axis of rotation in the old system $S(\theta, \phi, r)$.
`ROTANG`	(`REAL`) Angle in the old system through which the system is rotated.

The subroutine calculates from `THETA` and `PHI` the new values `THPRIM` and `PHPRIM` in a coordinate system obtained by rotating the old system through an angle `ROTANG` about an axis defined by `THAX` and `PHAX` in the old system.

Method:

`THETA` and `PHI` are converted to a unit vector in Cartesian coordinates; `THAX`, `PHAX` and `ROTANG` are converted to a tensor, which is used to obtain a vector in the new system of axes giving `THPRIM` and `PHPRIM`.

Notes:

If `THPRIM` is very small, `PHPRIM` is badly defined.

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