pp00aa

Constructs Poincaré plot and "approximate" rotational-transform (driver).

[called by: xspech.] [calls: pp00ab.]

contents

1

ppt	JUaa	1
1.1	relevant input variables	1
1.2	format of output: Poincaré	1
1.3	format of output: rotational-transform	2

1.1 relevant input variables

- 1. The resolution of Poincaré plot is controlled by
 - i. nPtraj trajectories will be located in each volume;
 - ii. nPpts iterations per trajectory;
 - iii. odetol o.d.e. integration tolerance;
- 2. The magnetic field is given by bfield.
- 3. The approximate rotational transform is determined, in pp00ab, by fieldline integration.

1.2 format of output: Poincaré

1. The Poincaré data is written to .ext.poincare:xxxx, where xxxx is an integer indicating the volume. The format of this file is as follows:

where

- i. $\theta \equiv \text{data(1,k,j)}$ is the poloidal angle,
- ii. $s \equiv \text{data(2,k,j)}$ is the radial coordinate,
- iii. $R \equiv \text{data(3,k,j)}$ is the cylindrical R,
- iv. $Z \equiv \text{data(4,k,j)}$ is the cylindrical Z,
- 2. The integer k=0,Nz-1 labels toroidal planes, so that $\phi = (2\pi/\text{Nfp})(k/\text{Nz})$,
- 3. The integer j=1,nPpts labels toroidal iterations.
- 4. Usually (if no fieldline integration errors are encountered) the number of fieldlines followed in volume lvol is given by N + 1, where the radial resolution, $N \equiv Ni(lvol)$, is given on input. This will be over-ruled by if nPtrj(lvol), given on input, is non-negative.
- 5. The starting location for the fieldline integrations are equally spaced in the radial coordinate $s_i = s_{l-1} + i(s_l s_{l-1})/N$ for i = 0, N, along the line $\theta = 0, \zeta = 0$.

1.3 format of output: rotational-transform

1. The rotational-transform data is written to .exttransform:xxxx, where xxxx is an integer indicating the volume. The format of this file is as follows:

pp00aa.h last modified on ; SPEC subroutines;