

## NAME

scatfile\_convert - converts binary format scattering distributions to FITS format

## SYNOPSIS

**scatfile\_convert** [OPTIONS]

## DESCRIPTION

For each line the *scatter\_db*, **scatfile\_convert** converts the binary format scattering distribution to a FITS file. Each scattering distribution file is placed in a single FITS binary table.

The *hdosxform\_db* and *mirror\_db* are used to determine the zone geometry in the body center coordinates.

## OPTIONS

The following options are supported:

*hdosxformdb*

RDB database mirror dimensions. See *FILES*.

*mirrordb*

RDB database of mirror positions. See *FILES*.

*scatterdb*

RDB database of zone positions and scattering distribution files. See *FILES*.

*outputdir*

Directory into which the output files are written. The output files will be named after the binary scat\_files in the *scatter\_db*.

*help*

Print brief usage information and exit.

*usage*

Print usage information and exit.

*version*

Print version information and exit.

## EXAMPLE

```
scatfile_convert \
--hdosxformdb /proj/axaf/simul/databases/mirror/hdos_xform.rdb \
--mirrordb /proj/axaf/simul/databases/mirror/EKCHDOS06.rdb \
--scatterdb /proj/axaf/simul/databases/scatter/HDOS_980623a.rdb \
--outputdir ./HDOS/980623a/tables
```

## FILES

### HDOS Transform Database

The HDOS transform database must contain the mirror name, mirror end cut position, and mirror length in the *mirror*, *Z\_ec*, and *L* columns respectively.

### Mirror Database

The mirror database must contain the mirror name and Z position of the body center of the optic in the *mirror* and *z0* columns respectively.

### Scatter Database

The scatter database must contain the mirror name, Z position of the zone minimum, Z position of the zone maximum, and the binary format scattering distribution file in the *mirror*, *zmin*, *zmax*, and *scat\_file* columns respectively.

### Scattering Distribution Files

These files are assumed to be binary format files with the following structure:

*integer*

an integer representing the number of elements in the scattering distribution(ndist).

*float*

a float representing energy times sine of the graze angle(esa).

*float*

a float representing the minimum probability in the scattering distribution(p0).

*float*

a float representing the distance between probabilities in the scattering distribution(pdelta).

*float*

a float representing the maximum probability in the scattering distribution(ptop).

*float*

a float representing the normalization factor for the value being raise to a power(normtop).

*float*

a float representing the power to which the normalized(normtop) value is raised(powtop).

*float*

a number(ndist) of floats representing the scattering distribution (pdist).

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### VERSION

This documents version @VERSION@ of **scatfile\_convert**.

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