NAME

e872_uv2xy, e872_xy2uv - E872 utility routines for coordinate conversions

SYNOPSIS (C)

```
#include <e872_utils.h>

void e872_uv2xy(double uv[4], double xy[4]);
void e872_xy2uv(double xy[4], double uv[4]);

% cc file.c -L/opt/e872/utils/lib -le872_utils
```

SYNOPSIS (FORTRAN)

```
#include <e872_utils.inc>

subroutine e872_uv2xy(real uv(4),real xy(4))
subroutine e872_xy2uv(real xy(4),real uv(4))

% f77 file.f -L/opt/e872/utils/lib -le872_utils
```

DESCRIPTION

The **e872_uv2xy()** and **e872_xy2uv()** routines can be used to convert coordinates between the standard E872 X (west), Y (up), Z (beamline) coordinate system used in the spectrometer and the U (down and east), V (down and west), Z' (beamline) coordinate system used in the emulsion target.

Since the Z and Z' coordinate axes are taken to be identical, they are not included in the transform.

FUNCTIONS

Function **e872_uv2xy()** is used to convert from (U,V,Z') coordinates to (X,Y,Z) coordinates. Array _uv_ is an array of the following four quantities (in this order):

U position (in millimeters)
V position (in millimeters)
U angle (in radians)
V angle (in radians)

Array _xy_ is an array of the following four quantities (in this order):

X position (in millimeters)
Y position (in millimeters)
X angle (in radians)
Y angle (in radians)

Function **e872_xy2uv()** is used to convert from (X,Y,Z) coordinates to (U,V,Z') coordinates. The two array arguments have the same meaning as in function **e872_uv2xy()**.

FILES

_/opt/e872/utils/lib/libe872_utils.a_
The static **e872_utils** object library.

_/opt/e872/utils/lib/libe872_utils.so.*_
The shared **e872_utils** object library.

_/opt/e872/utils/include/e872_utils.h_
The **e872_utils** C header file, which defines prototypes for routines **e872_uv2xy()** and **e872_xy2uv()**.

CAVEATS

Linking C/FORTRAN executables can be a touchy operation. For instance, the GNU FORTRAN compiler **g77** often requires the "-fno-second-underscore" argument to properly find routines that have an underscore in their names. Also note that any FORTRAN compiler worth its salt permits use of the C preprocessor (see **cpp**(1) or **cccp**(1)). The GNU FORTRAN compiler **g77** permits use of the argument "-x f77-cpp-input" to accomplish this end.

SEE ALSO

e872_utils(3C,3F)

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