

F1.5 Surface Data in Rectangular Grid

Format

A surface defined by a function of the form $z = f(x, y)$ can be specified by z -values in a rectangular grid. This format is used by the class *Regular xy-Grid* and the file extension is *.sfc*.

The format is:

Record Contents	Format
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1	TEXT	(characters)
---	------	--------------

TEXT - Record with identification text

2	XS, YS, XE, YE	(4 real numbers)
---	----------------	------------------

XS - Starting x -value
 YS - Starting y -value
 XE - End x -value
 YE - End y -value

3	NX, NY	(2 integers)
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NX - Number of x -values
 NY - Number of y -values

4	((Z(I, J), J=1, NY), I=1, NX)	(real numbers)
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Z(I, J) z -value of reflector surface at the point
 (x, y) where
 $x = XS + \Delta x (I-1)$
 $y = YS + \Delta y (J-1)$
 $\Delta x = (XE - XS) / (NX - 1)$
 $\Delta y = (YE - YS) / (NY - 1)$

This record may be divided into several data lines with at least one z -value on each data line.

---end of file---

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F1.6 Surface Data in Irregular Points

Format

The surface defined as a function of the form $z = f(x, y)$ is specified by the z -values in an irregular set of (x, y) specified points. This format is used by the class *Irregular xy-Grid, Pseudo Splines* and the file extension is *.sfc*.

Record Contents	Format
-----------------	--------

1	TEXT	(characters)
---	------	--------------

TEXT - Record with identification text

2	N_POINTS	(1 integer)
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N_POINTS - Number of (x, y, z) -values

3	X(I), Y(I), Z(I), I=1,N_POINTS	(3 real numbers)
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X(I), Y(I), Z(I)

the (x, y, z) -coordinates of the I'th surface point.

---end of file---

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F1.7 Surface Data as Zernike Modes

Format

The surface is specified by Zernike polynomials using the following Zernike coefficients. This format is used by the class *Zernike Surface* and the standard file extension is .zer. The format of the file can be modified by the attributes in the *Zernike Surface* class, but the default format is:

Record Contents	Format
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1	TITLE	(characters)
---	-------	--------------

TITLE - Record with identification text

2	NC	(1 integer)
---	----	-------------

NC - Number of Zernike coefficients

3..	M(I), N(I), C1(I), C2(I)	(2 integers, 2 real numbers)
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Continued for I=1,NC

Values for the I'th Zernike coefficient

M - *m*-index.

N - *n*-index.

C1 - First coefficient.

C2 - Second coefficient.

The Zernike coefficients C1 and C2 can be given as amplitude and rotation angle in degrees, 'amp_deg' (TICRA format), or as even and odd symmetric components, 'even_odd' (old POS & POD format). The definition used must be specified in the *Zernike Surface* object by the attribute *mode_definition*.

---end of file---

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F1.8 Surface Defined by Cubic Splines

Format

A surface can be specified by cubic splines using the following spline coefficients. This format is used by the class *Spline Surface* and the standard file extension is *.spl*.

The format is:

Record Contents	Format
-----------------	--------

1	TEXT	(characters)
---	------	--------------

TEXT - Record with identification text

2	XS, YS, XE, YE	(4 real numbers)
---	----------------	------------------

XS - Starting x -value for spline definition area
 YS - Starting y -value for spline definition area
 XE - End x -value for spline definition area
 YE - End y -value for spline definition area

3	NX, NX	(2 integers)
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NX - Number of spline coefficients along x
 NY - Number of spline coefficients along y

4	((C(I,J), J=1,NY), I=1,NX)	(real numbers)
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C(I,J) - Spline coefficient $C_{I,J}$. Index I corresponds to the one-dimensional spline in the x -direction and index J to the one-dimensional spline in the y -direction.

---end of file---

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F2 Field Data

The file formats for field values in cuts, uv -grids and irregularly arranged points are described in the following sections together with the file formats for field directions.

- [*Field Data in Cuts*](#)
- [*Field Data in Rectangular Grid*](#)
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