

Synchrotron radiation: cards

```
SPECSOUR ELECTRON 3.0 -2.0 0.0000001 1.000 0.0 SYNC-RAS
SPECSOUR 150.0 0.0 -0.5 -1000. 0.0 -0.100&
```

WHAT(1) = particle emitting the radiation
Default: 3.0 (ELECTRON)

WHAT(2) > 0.0: emitting particle momentum (GeV/c)
< 0.0: kinetic energy of the emitting particle (GeV)

WHAT(3) > 0.0: curvature radius of the emitting particle trajectory (cm)
< 0.0: absolute value of the bending magnetic field (T)

WHAT(4) = lower limit of the photon energy spectrum (GeV)
Default: 1.E-7 GeV

WHAT(5) = x-component of the magnetic field versor

WHAT(6) = y-component of the magnetic field versor

SDUM = SYNC-RAD if the z-component of the magnetic field versor is > 0.0

SYNC-RDN if the z-component is < 0.0

SYNC-RAS if the z-component of the magnetic field versor is > 0.0
and the magnetic field of the second arc (if present) has opposed
sign to that of the first arc.

SYNC-RDS if the z-component is < 0.0 and the magnetic field of
the second arc (if present) has opposed sign to that of the first
arc.

Synchrotron radiation: cards (continuation card)

```
SPECSOUR ELECTRON 3.0 -2.0 0.0000001 1.000 0.0 SYNC-RAS  
SPECSOUR 150.0 0.0 -0.5 -1000. 0.0 -0.100&
```

Continuation card:

WHAT(1) = length of the emission arc or helical path (cm)

Default = 100.0 cm

WHAT(2) = x-coordinate of the starting point of a possible second path of same length (see Note 1)

WHAT(3) = y-coordinate of the starting point of the second path (see Note 1)

WHAT(4) = z-coordinate of the starting point of the second path (see Note 1)

WHAT(5) = x-component of the emitting particle direction versor at the beginning of the second path (see Notes 1 and 2)

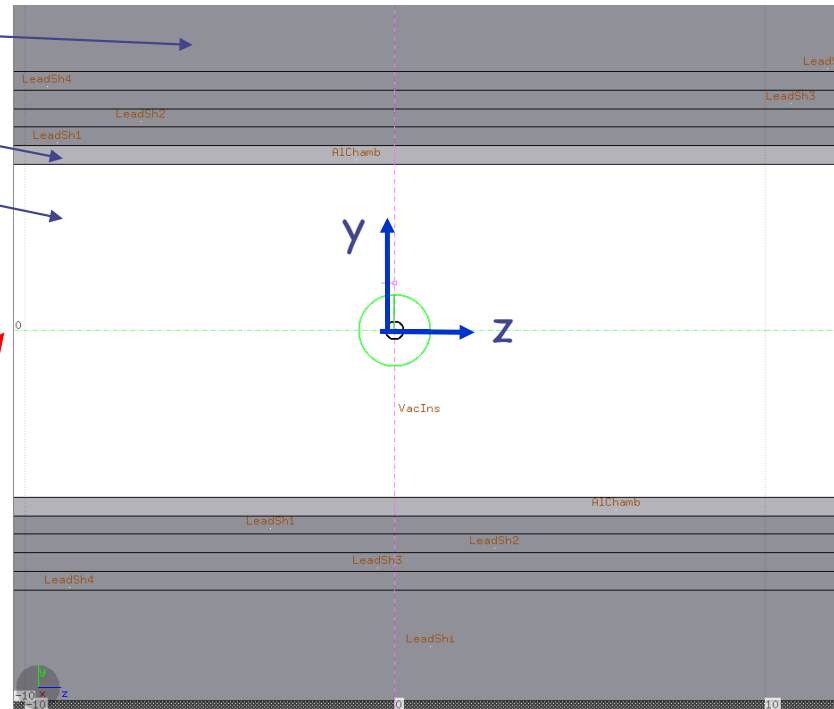
WHAT(6) = y-component of the emitting particle direction versor at the beginning of the second path (see Notes 1 and 2)

SDUM = "&" in any position in columns 71-78 (or in last field if free format is used)

Synchrotron radiation: example

Lead shielding
Al layer
Vacuum

Start of first arc

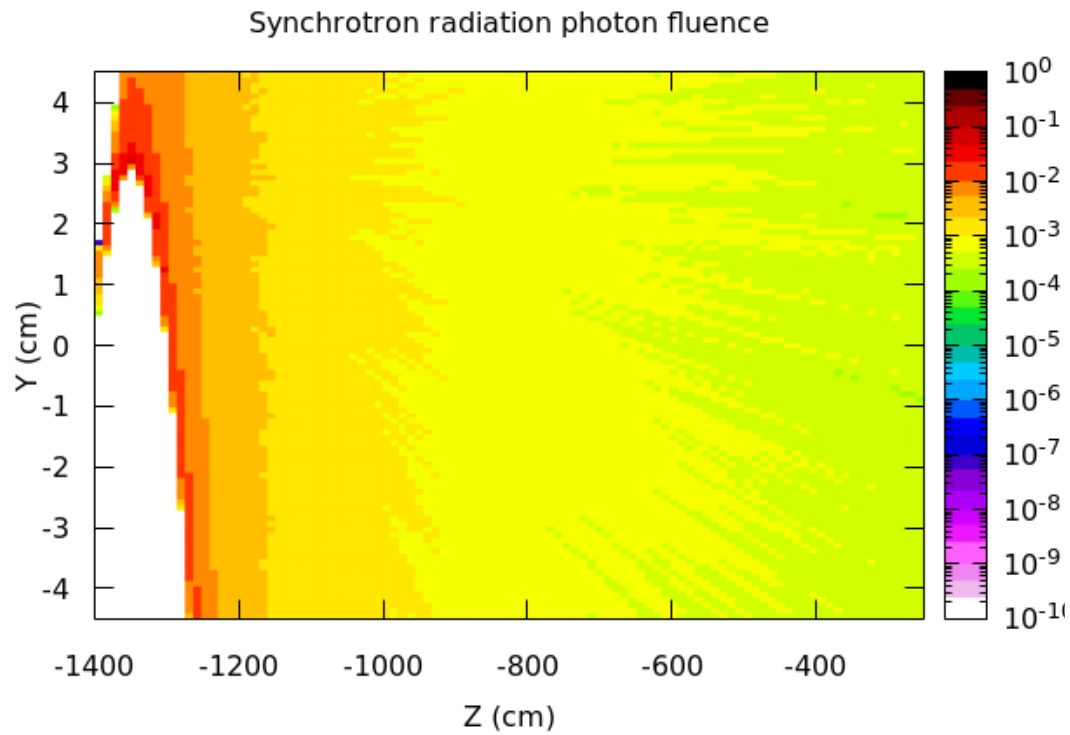


Synchrotron radiation photons from 3-GeV electrons on a 150 cm arc in $B=2$ T along X (into the screen)

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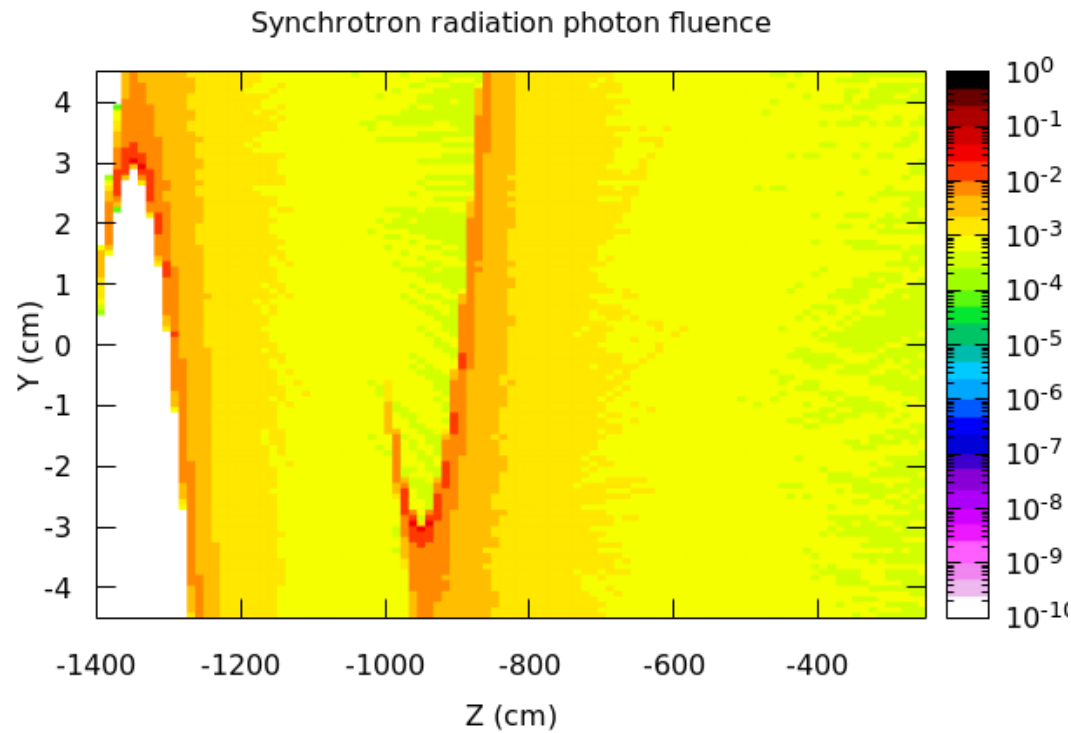
BEAMPOS 0.5 -1400.0 0.100
SPECSOUR ELECTRON 3.0 -2.0 0.0000001 1.000 0.0 SYNC-RAS
SPECSOUR 150.0 &
    
```

Synchrotron radiation: 1-arc example



BEAMPOS		0.5	-1400.0		0.100	
SPECSOUR	ELECTRON	3.0	-2.0	0.0000001	1.000	0.0 SYNC-RAS
SPECSOUR	150.0					&

Synchrotron radiation: 2-arc example



```

BEAMPOS      0.5      -1400.0      0.100
SPECSOUR     ELECTRON  3.0      -2.0  0.0000001  1.000      0.0 SYNC-RAS
SPECSOUR     150.0    0.0      -0.5  -1000.    0.0      -0.100
    
```