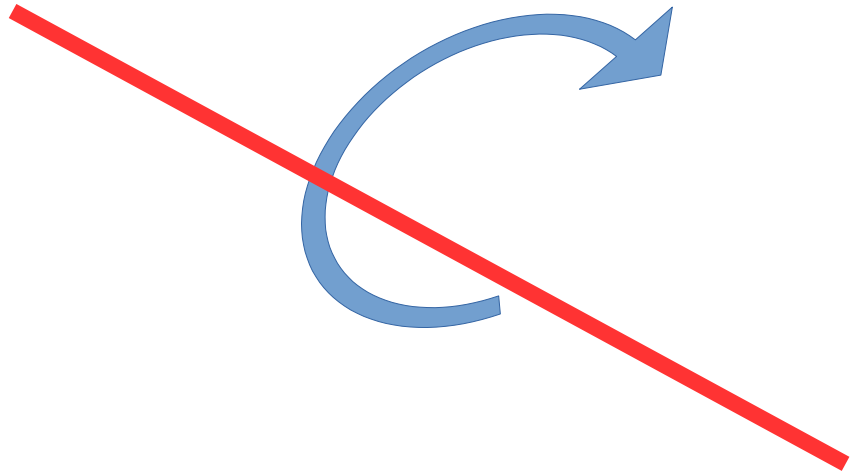
Moving Optics

- Disk Chopper
- Fermi Chopper
- Velocity selector

Not optics that move



...optics with moving parts

Moving optics

I.e. we can't do:

```
COMPONENT something = Sometype(
    par1=value1, par2=value2, ….)
AT( f_x(t), f_y(t), f_z(t) )RELATIVE someother
```

So what *can* we do?

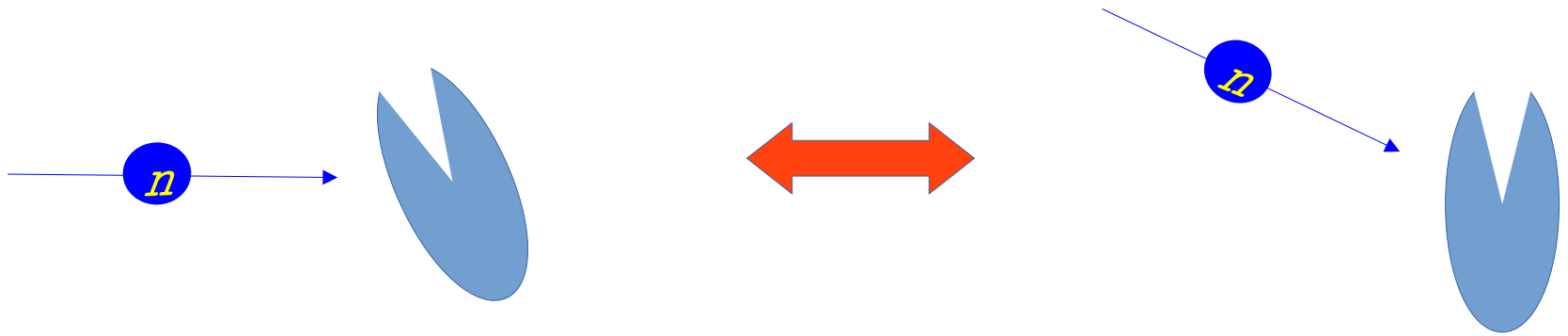
Moving optics

I.e. we can't do:

```
COMPONENT something = Sometype(
    par1=value1, par2=value2, ….)
AT( f_x(t), f_y(t), f_z(t) )RELATIVE someother
```

So what *can* we do?

Instead, we operate internally in the component on the neutron state, e.g. "rotate" the neutron etc.

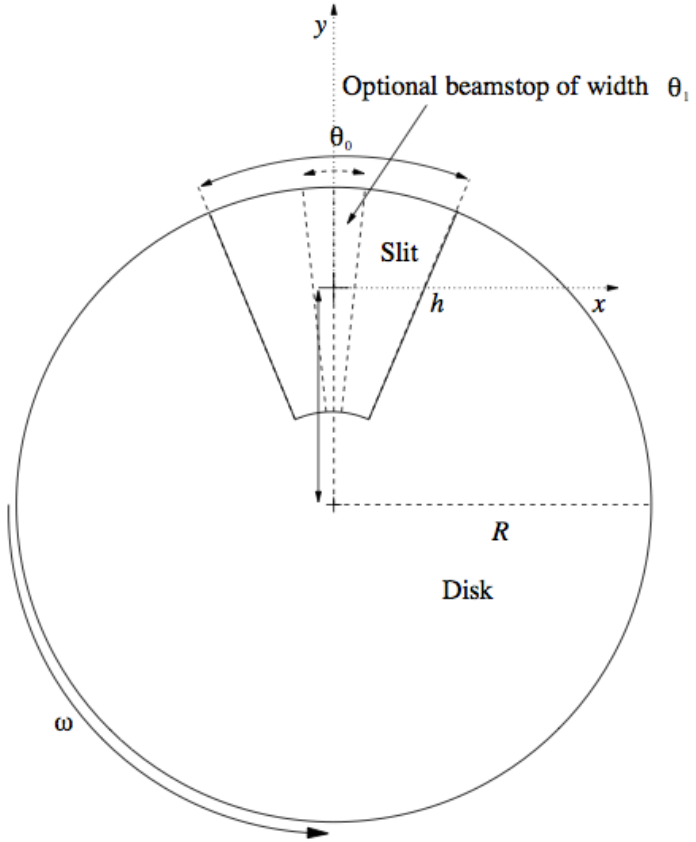


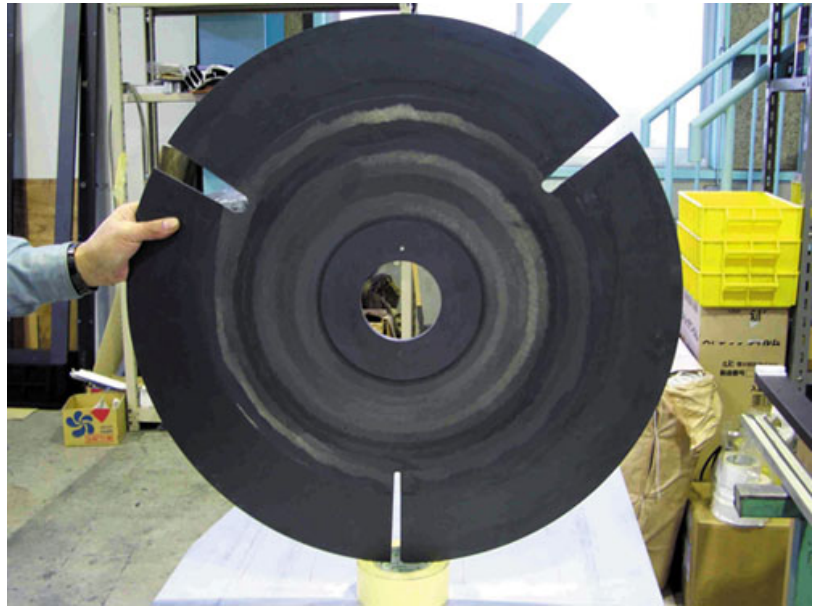
DISK CHOPPER

Define time structure of the beam

Time Of Flight (TOF) measurements

Disk chopper



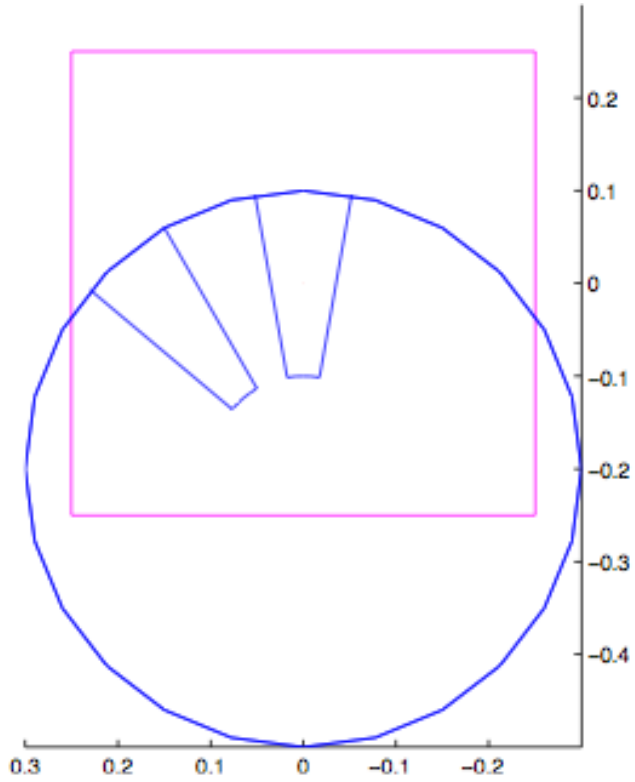


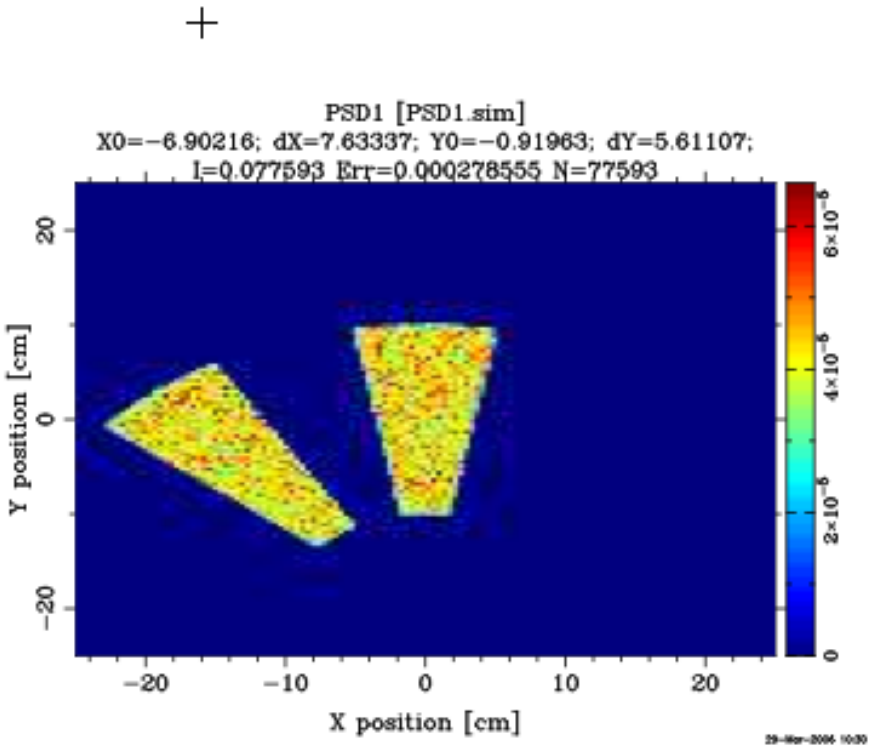
Disk chopper

INPUT PARAMETER

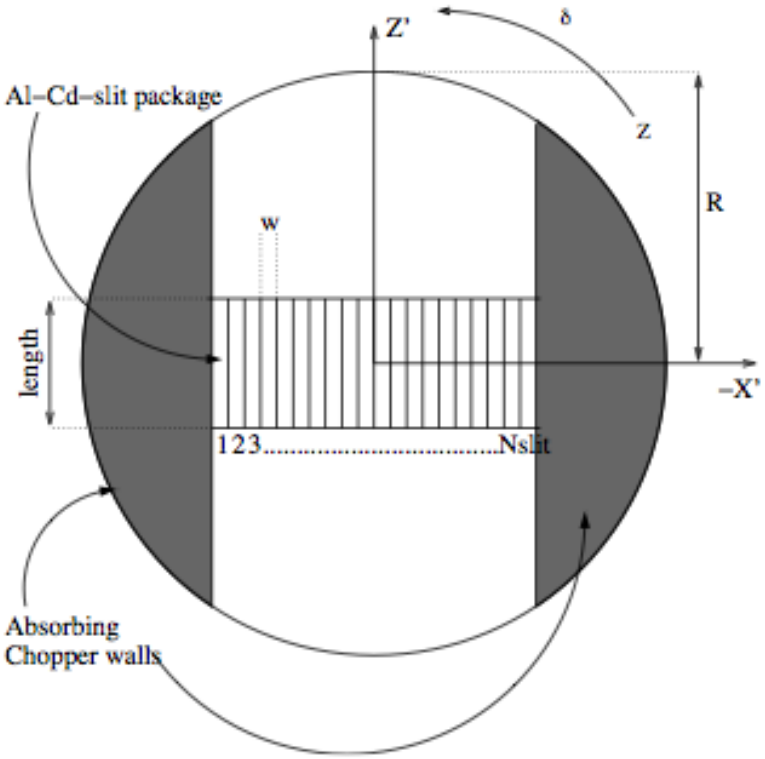
nu	[Hz]	frequency
yheight	[m]	slit height (if 0, yheight = radius)
radius	[m]	disk radius
theta_0	[deg]	angular width of slits
xwidth	[m]	horizontal slit width opening, beam center
jitter	[s]	jitter in time phase
delay	[s]	time delay
phase	[deg]	angular delay, overrides time
Isfirst	[0/1]	several choppers, defines first chopper
npulse	[1]	number of pulses if isfirst=true
verbose	[1]	display disk chopper config

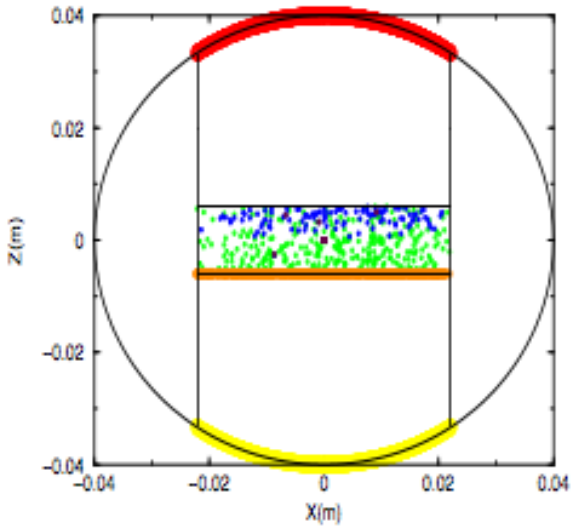
Disk Chopper





Fermi Chopper



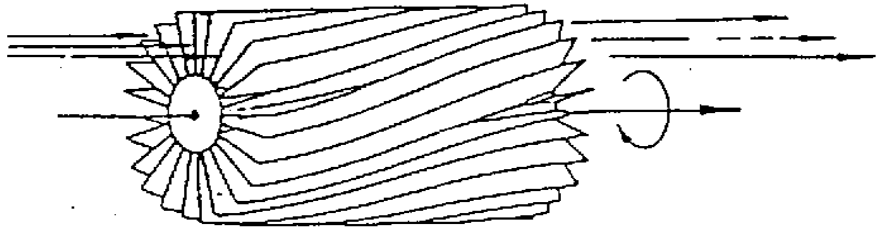


Velocity Selectors

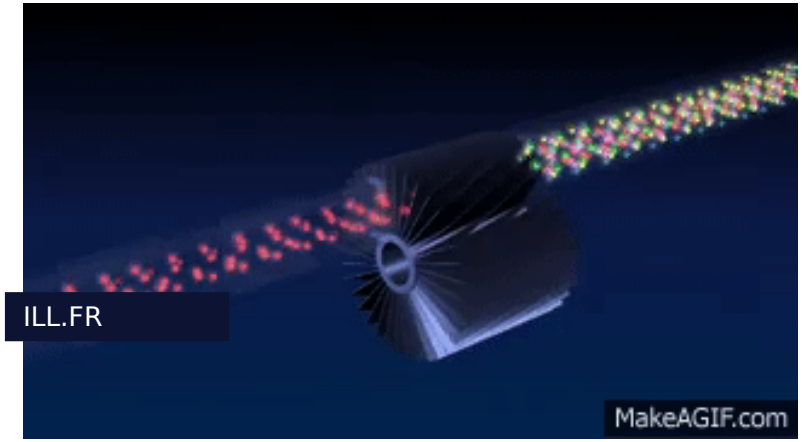
-

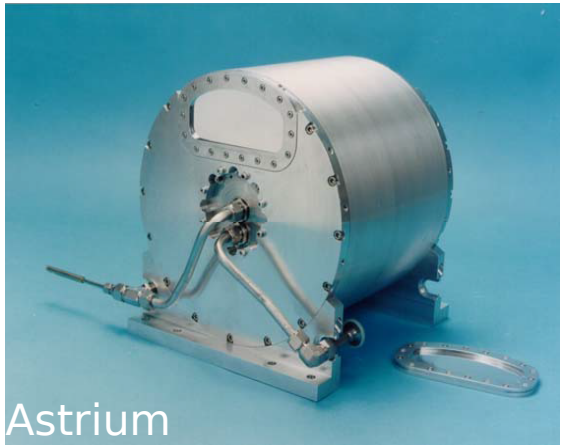
Select the neutron energy you want

Velocity Selectors



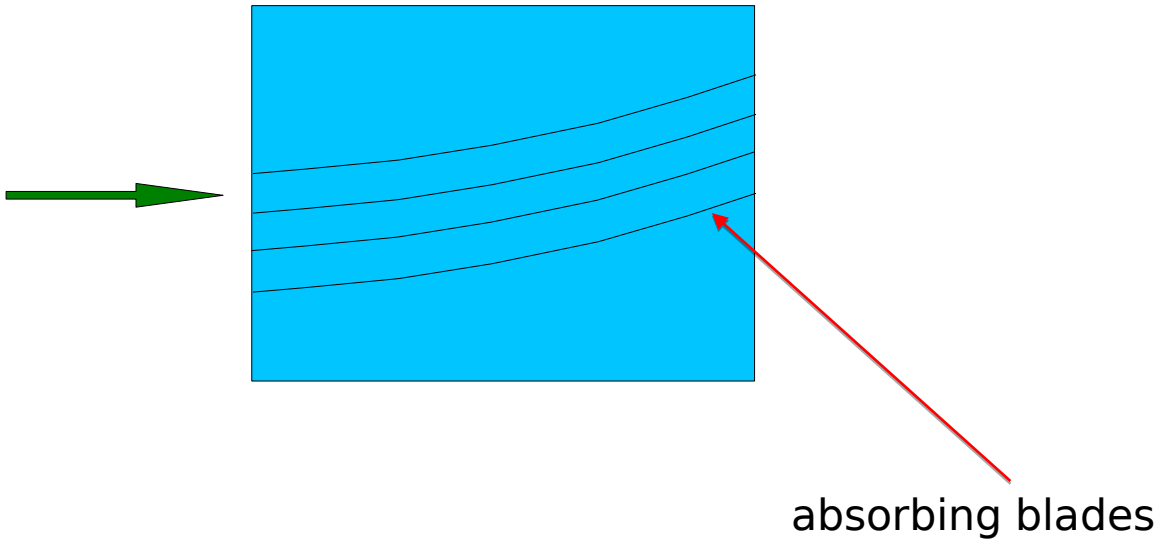
Drum with curved absorbing blades



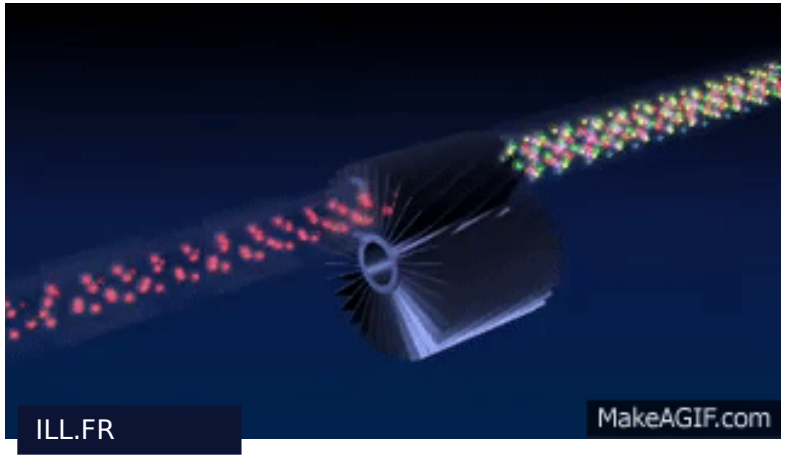


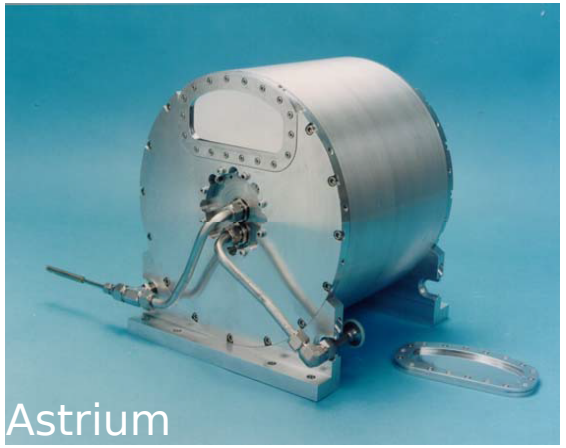
Velocity Selectors

Schematic of a velocity selector

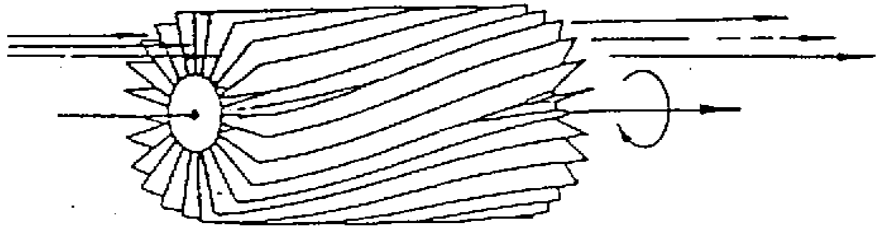


‘broad’ monochromatization $\delta\lambda/\lambda \approx 10\ \%$





VELOCITY SELECTOR



INPUT PARAMETER

xwidth	[m]	width entry aperture	] housing
yheight	[m]	height entry aperture	
zdepth	[m]	housing! length	
length	[m]	blade length	
d	[m]	blade thickness	
alpha	[deg]	twisting angle	
radius	[m]	distance rotation axis – aperture centre	
nu	[Hz]	rotation speed, counterclockwise	
nslit	[]	number of blades	