

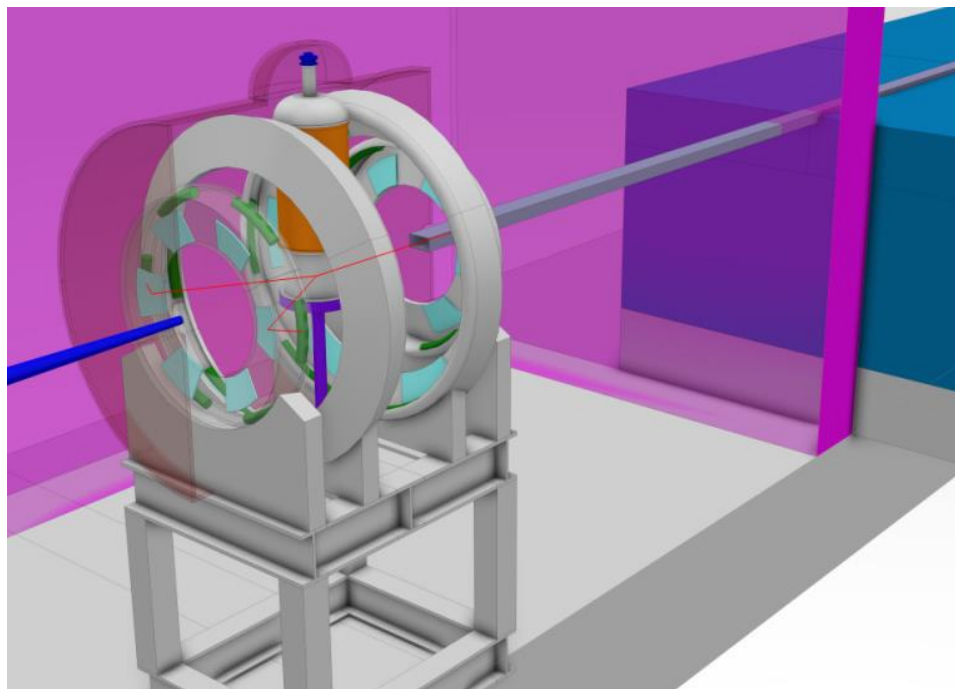
# VESPA: What is it?

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A crystal-analyser inverse-geometry time-of-flight spectrometer for

***Neutron Vibrational Spectroscopy (NVS)***



Wavenumbers /  $\text{cm}^{-1}$

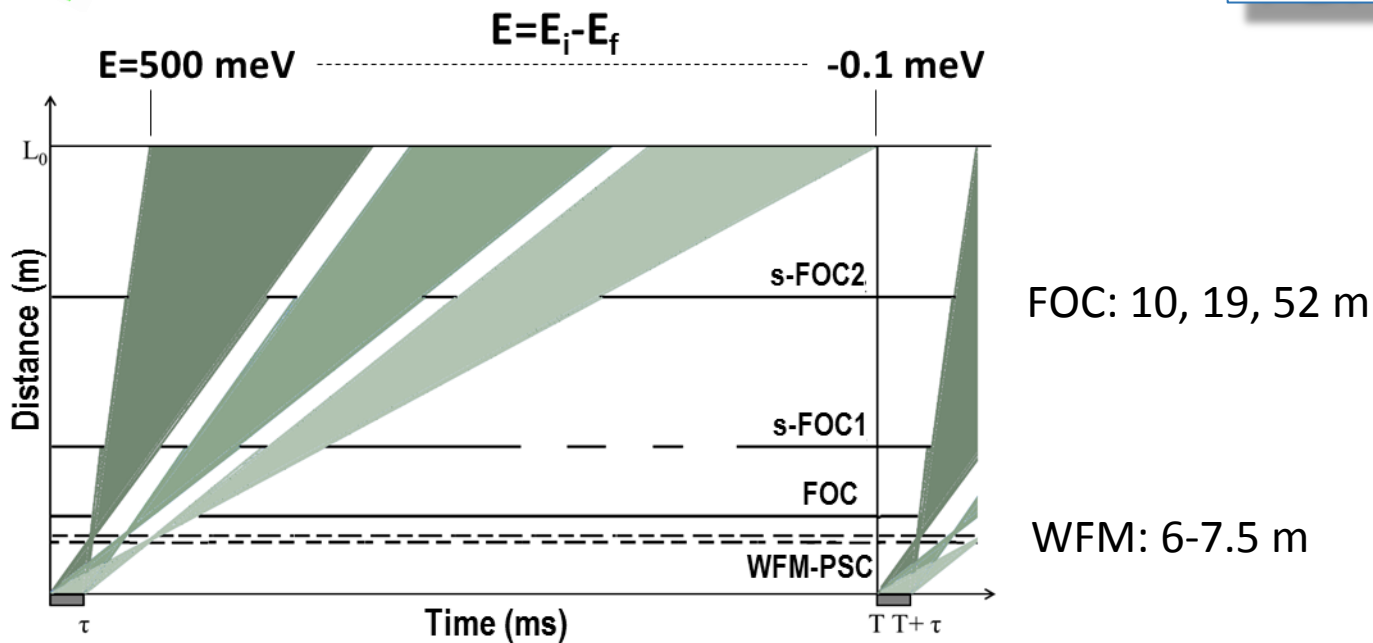
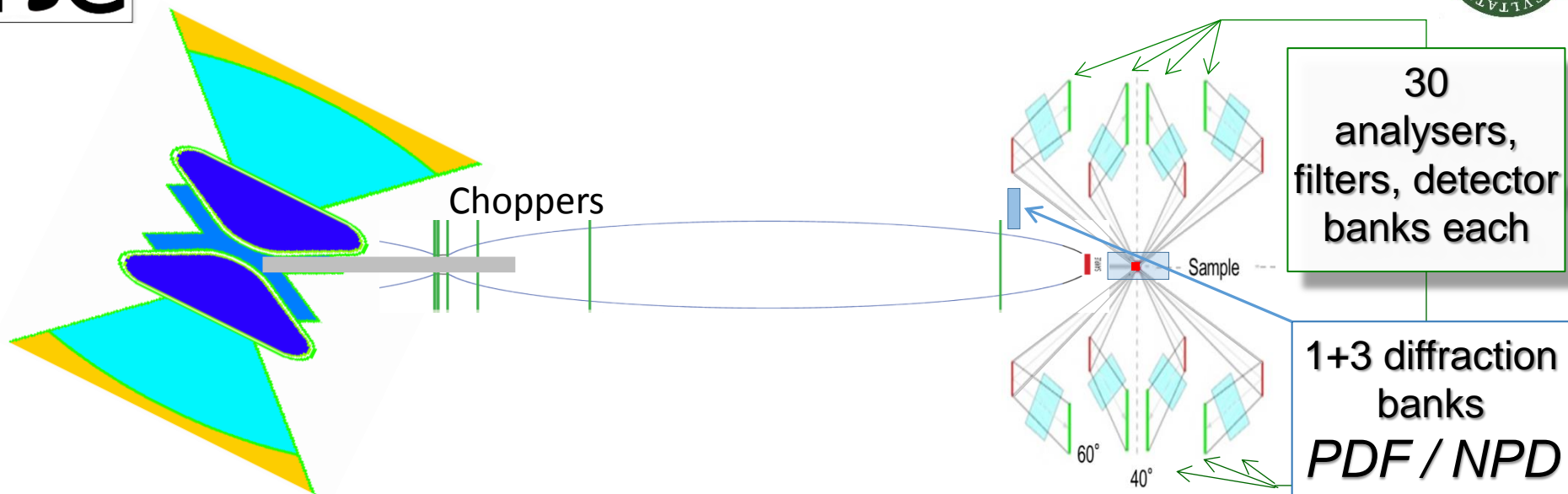
-800      0      800      1600      2400      3200      4000

Energy transfer

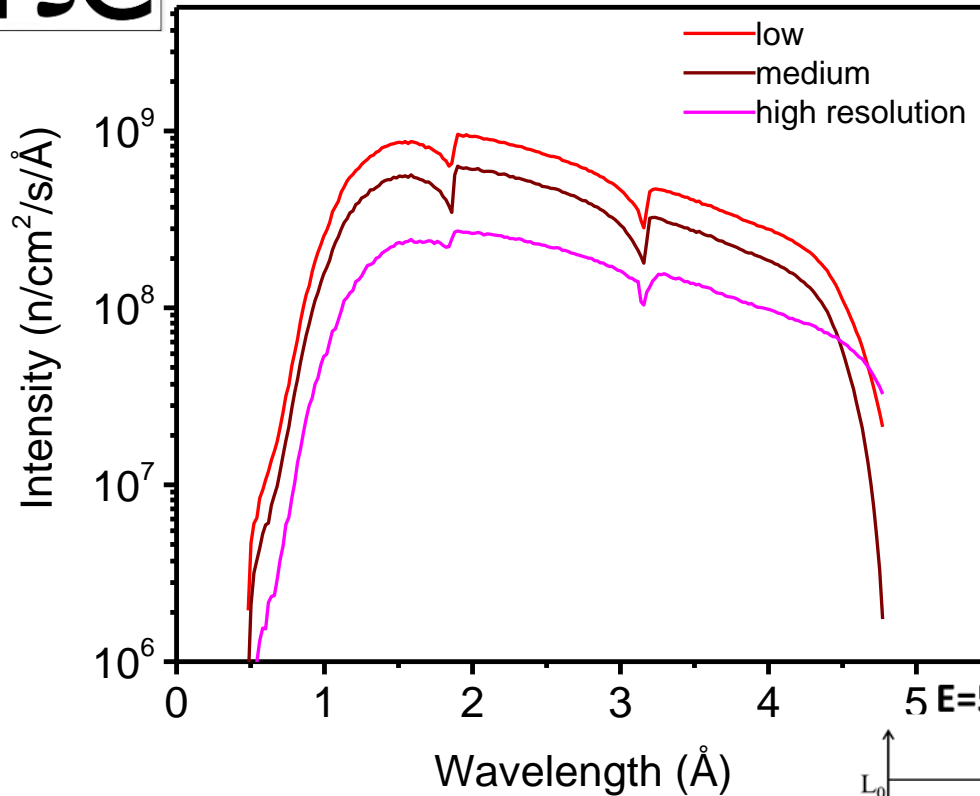
-100      0      100      200      300      400      500

Energy / meV

# Instrument Overview

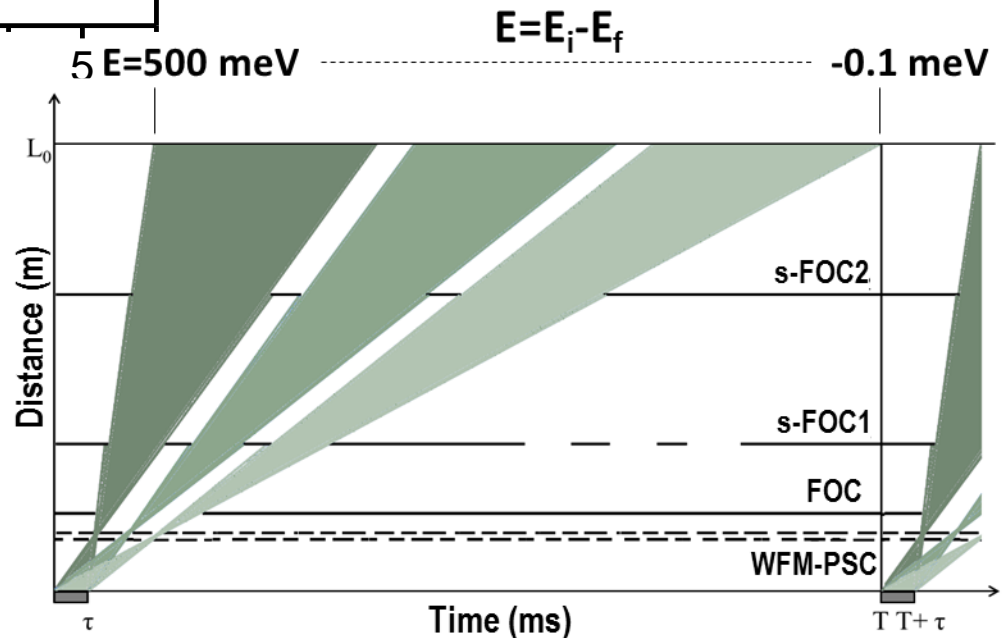


# What do we want



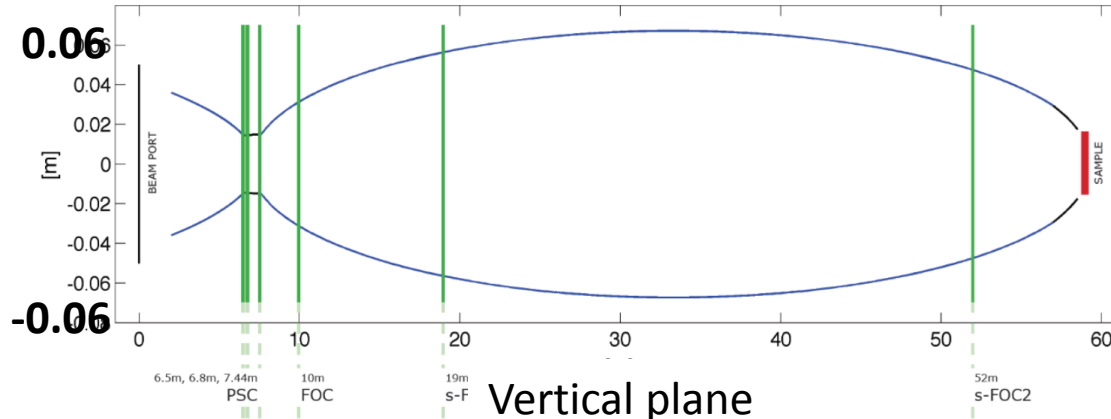
3cm upper moderator

- High intensity of neutrons of all wavelengths
- High resolution in E
- Sample size  $3\text{cm}^2$  (for high-pressure  $1\text{cm}^2$ )
- Get rid of prompt pulse



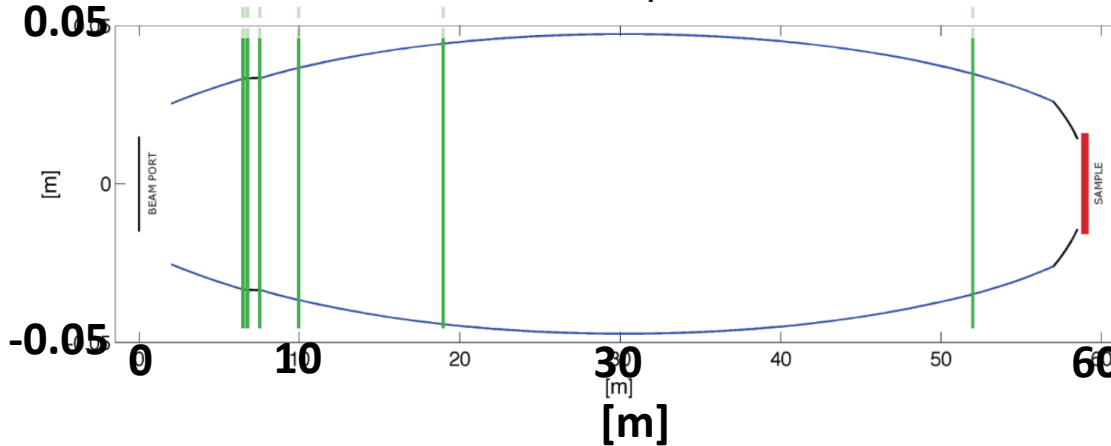
# Neutron Guides

## Horizontal plane

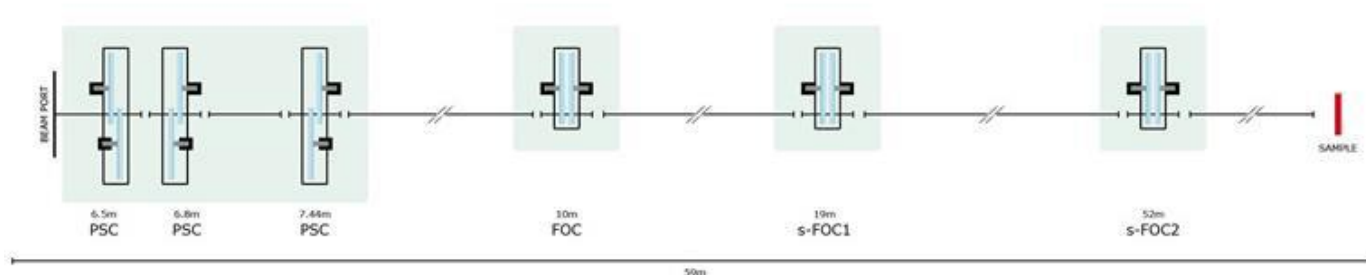


- Sample size: 3x3 cm<sup>2</sup>
- d(moderator-sample)=59m
- d(guide-sample)=0.5 m
- Divergence  $\pm 2^\circ$  (horizontal and vertical)
- m=4

## Vertical plane



- wavelength range:
- full weight 0.6 to 1.0 Å,
  - linear decrease to 4.7 Å
  - focusing window of 3x6cm<sup>2</sup> at 6.8m (WFM)





# Things to consider...

- Straight guide with  $m=4$  (comparable to VISION, SNS)?
- Where to put Tzero chopper? In bunker, at 50m?
- Guide design similar to DREAM???
- View on the moderator?
- Reevaluate cost:
  - 57 m straight neutron guide ( $m=4$ , elliptic): **1,713 k€**
  - Shielding: 880 k€ -> **2,000 k€**
- Keep shielding as thick as necessary, look for sources to procure materials for low price





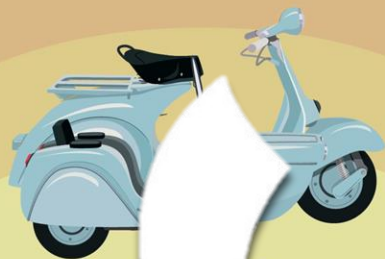
1 9 4 3



1 9 4 7



1 9 5 3



5



1 9 5 9



1 9 7 6



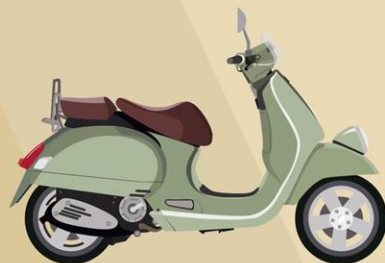
1 9 7 8



1 9 8 5



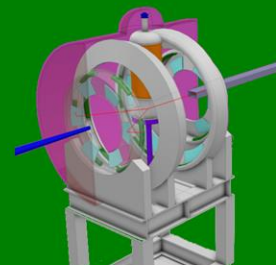
1 9 9 6



2 0 1 0



2 0 1 3



2 0 2 0