

# Time-of-Flight Spectrometer

For inelastic neutron scattering experiments from polycrystalline samples



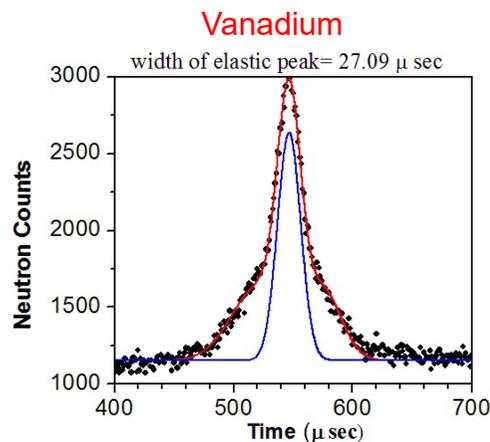
For measurements of phonon density of states, crystal field excitations, and quasielastic scattering.

Elastic energy resolution 7 %  
Sample temperature 10-300 K

Allows measurement of the scattering function in (Q,E) space

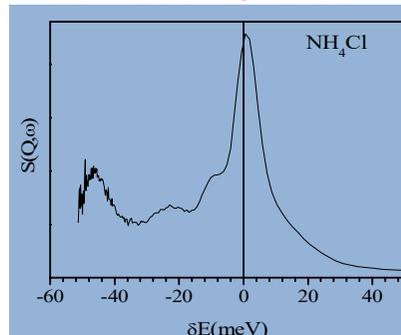
Instrument parameters	
Beam hole	HS1017
Monochromator	Focussing Cu(111)
Chopping system	Fermi chopper Maximum speed=30000 rpm
Energy transfer range	up to 150 meV
Momentum transfer range	1-10 Å
Beam size	40 mm x 40 mm
Energy Analysis	Time of flight
Flight path	2 m
Scattering angle	up to 100°
Detectors	Bank of forty neutron position sensitive detectors

Experimental Data:



Elastic resolution of 27 μsec , giving an energy resolution ~ 5 meV

Ammonium Chloride



The elastic peak followed by a continuous spectrum and two peaks at energy transfers of 24 meV and 48 meV corresponding to the librational modes of NH<sub>4</sub> are seen.

Publications

1. Indigenous design and development of multiPSD array for time of flight neutron spectrometer, Shradha S. Desai, Shylaja Devan, Amrita Das, S. M. Patkar, and Mala N. Rao , AIP Conf Proc 1731 (2016) 060010.