

Major Research Facilities in AKR group

AKR group use a number of facilities for our experimental work. Below a small list is given. These include modern growth facilities for materials, structural characterization facilities as well as electrical, magnetic and optical measurements. AKR group also uses spatially resolved measurements using scanning probe microscope. The details on sample preparation are given in links on Materials grown and Nanolithography activities.

All Common Facilities of the Centre are used by AKR group for details see the link <http://newweb.bose.res.in/facilities/TechnicalCell>

Special sophisticated experimental facilities used in AKR group

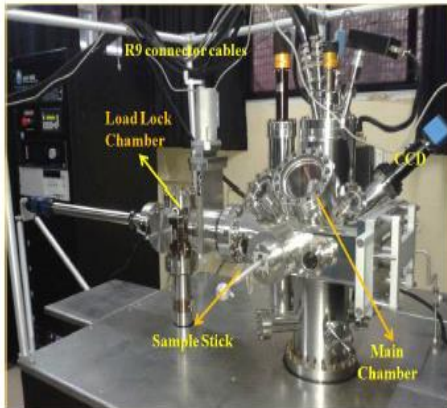
1. Low frequency noise measurement (temperature variable) down to a noise floor of $10^{-21}V^2/Hz$ and with variable temperature facility down to 77K	Assembled around lock-in amplifier can measure resistances down to nano ohm. This has a special soft-ware written by the group. It is very rare facility in the country
2. 1.5K, 10T GM cycle based system for transport, magnetic and dielectric measurements.	The measurement system (fully automated) has been assembled around the cryostat by the group along with the necessary software
3. Photo-conductivity measurements	Measurements of Photoconductivity in nanowires and films are done using a monochromator and a Light source (Xenon lamp)
4.UHV temperature variable Scanning probe microscope with magnetic field.	The RHK UHV temperature variable SPM is a combination of Scanning Tunneling Microscope (STM) and Atomic Force Microscope (AFM) which works in a UHV atmosphere of better than 10^{-10} torr and can span a temperature range from 30K to 800K.
5. Potentiostat and Electrochemical deposition unit	CHI- This unit is widely used for synthesizing metal nanowires in nanoporous templates using electrochemical deposition
6. Wet-chemical laboratory including sample heat treatments upto 1300C	AKR group uses extensive chemical routes for sample preparation. Almost all the samples used in the experimental work are synthesized in-house by AKR group.

Some of the facilities in AKR group



Cryogen free 10T superconducting magnet with 2K variable temperature inserts

(CRYOGENIC CONSULTANT)



UHV-temperature variable Scanning Probe microscope

(RHK consultant)



Home made set-up to measure the 1/f Noise and Nyquist noise. The set-up is kept in a shielded enclosure