

School of Sciences

Report of International Collaborative Research at Korea Institute of Science and Technology (KIST) Seoul, South Korea (1 – 22 July 2023)

Dr. Aditya Sharma (Assistant Professor) visited Korea Institute of Science and Technology (KIST), Seoul South Korea (1 – 22 July 2023) for the collaborative research work on the X-ray diffraction measurements and data collection from various samples prepared by the M.Sc. and Ph.D. students. The experiments are conducted as follows:

- A set of samples of Na ion battery electrodes was measured using the **Rigaku D Max-200** machine with Cu K α radiation ($\lambda = 1.540\text{\AA}$). The scanning range was 10° to 80° with scan speed of 1° per minute. The scan steps were 0.02° for collecting the good quality of data. The applied voltage was 40 KV and filament current was 200 mA.
- The second set of samples, of light emitting materials, was measured using **Bruker D8** advanced diffractometer machine. The applied voltage to this machine was 40 KV and filament current was 40 mA. The Cu K α radiation ($\lambda = 1.540\text{\AA}$) was also applied in this measurement. The scanning range was 10° to 120° with scan speed of 1° per minute. The scan steps were 0.02° for collecting the good quality of data.
- The thin film-based Li ion battery solid state electrolyte sample were studied using the glancing angle XRD (GI-XRD). The incident angle was only 1° , with respect to the sample surface. The **Rigaku D Max-200** machine with Cu K α radiation was operated in the thin film mode.

