Preparation of Carbon Coated Packing Material for High Performance Liquid Chromatography (HPLC)

Peter W. Carr (PI), Changyub Paek, Chemistry, University of Minnesota

NNIN Facility utilized: Characterization Facility

- To be motivated by limitations of current carbon media for chromatographic uses in spite of unique properties of carbon media including chromatographic selectivity and stability.
- To coat carbon on monodisperse, spherical microparticles (silica and alumina) with high surface area (~≥ 200 m^2/g) by chemical vapor deposition (CVD) using organic vapor.
- Organic vapor is supplied over microparticles at elevated temperature (e.g. 700 ^oC) for a given time under high purity nitrogen (99.99 % purity) flow.

- MAJOR OBSERVATIONS
  - Carbon deposition was achieved on both silica and alumina and their porous and spherical shape of microparticles was maintained.
  - The prepared carbon phases showed usefulness for chromatography including the unique properties like other carbon phases.