

# Alignable Nanomaterials for Rapid Biomolecule Separations

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Recent advances in analysis of proteins have increased the demand for more efficient techniques to separate intact proteins. Enhanced-fluidity liquid chromatography (EFLC) involves the addition of liquefied CO<sub>2</sub> to conventional liquid mobile phases. The addition of liquid carbon dioxide enhances diffusivity and decreases viscosity while maintaining mixture polarity, which typically results in reduced time of analysis. Herein, EFLC will be described for the separation of proteins under both hydrophilic interaction, as well as, hydrophobic interaction liquid chromatography conditions. The impact of using these solvents on protein structure, charge state distributions (CSD) and ionization efficiencies using electrospray ionization mass spectrometry will also be described. The results will show that the addition of liquefied CO<sub>2</sub> to the mobile phase provided an ESI-friendly and “supercharging” reagent without sacrificing chromatographic performance, which can be used to improve peptide and protein identification in large-scale application.

Date: Wed, Sept. 19, 2018

Time: 4:30-5:30 pm

Location: 208 Clark Hall

Students, meet the speaker over coffee and cookies in the Bennett Conference room at 4:00 pm