Teaching experience

Dept. of Chemical & Biomolecular Engineering, University of Delaware (Fall 2014 and 2015)
Graduate Teaching Assistant
- Served as a teaching assistant for the graduate Thermodynamics class in chemical engineering.
- Lectured two modules: multicomponent solutions and partial properties

Dept. of Chemical Engineering, UIS (2010 - 2012)
Undergraduate Teaching Assistant and Grader
- Served as a teaching assistant and grader for the undergraduate Thermodynamics II class in chemical engineering under Prof. L.J. López-Giraldo guidance.
- Lectured two modules: heat engines and liquid-vapor phase equilibrium.

Publications

Calero-Rubio, C.; Paik, B.; Jia, X.; Kiick, K.L.; Roberts, C.J. Predicting Unfolding Thermodynamics and Stable Intermediates for Alanine-Rich Helical Peptides with the Aid of Coarse-Grained Molecular Simulation. *Biophys. Chem.* **2016**, *217*, 8–19.

Calero-Rubio, C.; Saluja, A.; Roberts, C. J. Coarse-Grained Antibody Models for "weak" Protein-Protein Interactions from Low to High Concentrations. *J. Phys. Chem. B* **2016**, *120* (27), 6592–6605.

Ghosh, R.; **Calero-Rubio, C.**; Saluja, A.; Roberts, C.J. Relating Protein-Protein Interactions and Aggregation Rates from Low to High Concentrations. *J. Pharm. Sci.* **2016**, *105* (3), 1086–1096.

Calero-Rubio, C.; Stashenko, E.; Martínez, J.R.; López-Giraldo, L.J. Formulation of a New Generic Density-Based Model for Modeling Solubility of Polyphenols in Supercritical Carbon Dioxide and Ethanol. *J. Supercrit. Fluids* **2014**, *85*, 116–122.

Selected presentations

C. Calero-Rubio, R. Ghosh, A. Saluja, C. J. Roberts. Predicting high-concentration antibody interactions with coarse-grained molecular modeling. ACS Spring National Meeting, San Diego, CA (2016).

C. Calero-Rubio, B. A. Paik, X. Jia, K.L. Kiick, C. J. Roberts. Unfolding thermodynamics of helical peptides. ACS Spring National Meeting, San Diego, CA (2016).

M. A. Woldeyes, **C. Calero-Rubio**, E. M. Furst, C. J. Roberts. How predictive are protein-protein interactions of elevated viscosity for protein solutions? ACS Spring National Meeting, San Diego, CA (2016).

Skills

Computer programming: Fortran 95, C++, Python, Matlab, Mathematica, VBA
Molecular scale simulations: Transition Matrix Monte-Carlo, Replica Exchange Molecular Dynamics, Discrete Molecular Dynamics, Mayer Sampling, Monte-Carlo, Molecular Dynamics
Scattering measurements: Small-Angle Neutron and X-ray Scattering (SANS, SAXS), Static and Dynamic Light Scattering (SLS, DLS), Simultaneous Multiple Sample Light Scattering (SMSLS)
Chromatographic characterizations: HPLC-SEC, HPLC-SEC-MALS, HPLC-HIC, GC-MS, LC-MS
Physicochemical characterizations: Differential Scanning Calorimetry (DSC), Partial Specific Volume estimation via density measurements, protein solubility, Circular Dichroism (CD).