

# Bing Liu

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- Objective** Seeking a full time engineering position that I can contribute my knowledge and experience in chemical engineering or computer modeling
- Highlights**
- Five years of experience in computer modeling, numerical algorithms, and optimization methods
  - Five years of experience in energy-related thermodynamics research work
  - Proficient in using Windows, MS Office, Linux, Maple, Mathcad, OptdesX ...
  - Solid background in heat and mass transfer
  - Proficient in programming in Fortran and C++
  - A self-starter and team player
  - Experience in using the calorimetry technique to measure heats of dilution
  - Speak both English and Chinese
- Education**
- Ph. D. Chemical Eng. - Brigham Young University, Provo, Utah, 2001-2005 (GPA 3.8/4.0)*
- High-temperature Thermodynamics
- M. S. Chemical Eng. - Tsinghua University, Beijing, China, 1998-2001 (GPA 3.6/4.0)*
- Kinetics and Reactor Design
- B. S. Chemical Eng. – Shandong University, China, 1994-1998 (GPA 3.9/4.0)*
- Selected graduate-level courses ever taken**
- Kinetics catalysis
  - Computer Design Methods
  - Numerical heat transfer
  - Scientific computing
  - Multi-component thermodynamics
  - Advanced applied eng. mathematics
  - Advanced mass transfer topics
  - Transport phenomena
  - Partial differential equations
  - Combustion process
  - Applied statistical mechanics
  - Optimization techniques
- Employments & Experience**
- 2005-present. Postdoc in Chem. Eng. Dept., Brigham Young University. Research on G.E.'s coal gasification project. Details and accomplishments:
    - Developed a model to correlate properties of molten salts and silicates
    - Developed a phase equilibrium program to calculate phase diagrams for multi-components in multi-phases
    - Collected and regressed many superheated/supercooled thermodynamic data to build a standard thermo database for the components in the ash/slag produced in coal combustion/gasification
  - 2001-2005. Research Assistant in Chem. Eng. Dept., Brigham Young University. Research on the properties of aqueous high-temperature solutions. Details and accomplishments:
    - Developed the first model to calculate all kinds of thermodynamic properties of aqueous NaCl solutions in the critical region of water. (Accuracy: density <5%, heat of dilution < 10%)
    - Measured heats of dilution of aqueous electrolyte solutions using a calorimeter

	<p>developed in our laboratory</p> <ul style="list-style-type: none"> <li>▪ Developed the most accurate dissociation equilibrium constant equation by far for aqueous electrolyte solutions in the critical region of water</li> <li>▪ 2002-2005. Teaching Assistant in Transport phenomena, Advanced mass transport, Kinetics, Separation, and Thermodynamics courses, Main tasks: grading, answering questions, holding problem sessions, occasionally teaching classes in the case when the professors were busy or out of town.</li> </ul>
Computer Skills	<ul style="list-style-type: none"> <li>▪ Familiar with numerical algorithms and optimization methods</li> <li>▪ Proficient in computer modeling work in chemical engineering field</li> <li>▪ Familiar with multiple operating systems like Windows, Unix, and Linux</li> <li>▪ Regularly use MS Office, Maple, Matlab, Mathcad, Fluent, OptdesX, Origin...</li> <li>▪ Proficient in using program languages such as Fortran and C++</li> </ul>
Recent Honors, Awards	Department scholarship, Chem. Eng. Dept., Brigham Young Univ. (2001-2005)
Professional Memberships	Member of ACS
Selected Publications	<p><b>Bing Liu</b>, John L. Oscarson, Larry L. Baxter, and Reed M. Izatt. Modeling Multicomponent Solid-Liquid Phase Equilibrium of salts and silicates in Coal Combustion/gasification Processes. <i>5<sup>th</sup> US Combustion Meeting</i> March, 2007, accepted</p> <p><b>Liu, Bing</b>; Oscarson, John L.; Peterson, Craig J.; Izatt, Reed M. Improved Thermodynamic Model for Aqueous NaCl Solutions from 350 to 400 °C. <i>Industrial &amp; Engineering Chemistry Research</i> (2006), 45(9), 2929-2939.</p> <p>Izatt, R. M., <b>Bing Liu</b>, C.J. Peterson, J. L. Oscarson. Supercritical Water Oxidation. <i>Abstracts, 60th Northwest Regional Meeting of the American Chemical Society, Fairbanks, AK, United States, June 15-18 2005</i>, GEN-109.</p> <p>John L. Oscarson, <b>Bing Liu</b>, and R. M. Izatt. A Model Incorporating Ion Dissociation, Solute Concentration, and Solution Density Effects to Describe the Thermodynamics of Aqueous Sodium Chloride Solutions in the Critical Region of Water. <i>Industrial &amp; Engineering Chemistry Research</i> (2004), 43(23), 7635-7646</p>
Posters & Presentations	<p>Thermo International Conference 2006 "Improved Thermodynamic Model for Aqueous NaCl Solutions from 350 to 400 °C". <b>Bing Liu</b> J.L. Oscarson, C.J. Peterson, and R.M. Izatt.</p> <p>Thermo International Conference 2006 "Modification of the RIII Model to Describe Interactions of Carbon Dioxide with Aqueous NaCl Solutions at Temperatures from 350 to 400 °C and Pressures from 18 to 40 MPa". C.J. Peterson, J.L. Oscarson, <b>Bing Liu</b> and R.M. Izatt.</p> <p>The 57th annual Calorimetry Conference 2004 "A Model Incorporating Ion Dissociation, Solute Concentration, and Solution Density Effects to Describe the Thermodynamics of Aqueous Sodium Chloride Solutions in the Critical Region of Water". <b>Bing Liu</b>, J.L. Oscarson, C.J. Peterson, and R.M. Izatt</p>
Reference	Submit upon request