Yue Hu, Ph. D. Candidate

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Highlights

- Experienced organometallic, organic and polymer synthesis.
- Adept at catalysis and kinetics and thermodynamics modeling for reaction mechanisms.
- Strong technical skills including in air-free operations, various 2D NMRs, circular dichroism, electrochemistry and stopped-flow apparatus.
- Excellent written and oral communication skills.
- Proven team leader with collaborative teamwork abilities.

Education and Awards:

Ph.D., Chemistry, Columbia University, New York, NY expected graduation: May 2015

- Advisor: Jack R. Norton
- Thesis: Catalysis and mechanisms of asymmetric hydrogenation of C=N bonds.
- GPA: 3.93 /4.00, Rutgers Fellowship (granted to one graduate student each year who exemplifies academic excellence) 2011

B.S., Chemistry with Honor, University of Science and Technology of China (USTC), China;
GPA: 4.00 /4.30 July 2010

- National Scholarship (granted to top 3%) 2009
- Outstanding Student Scholarship (1st Prize) 2008
- MEDY Scholarship (granted to top 5%) 2007

Experience:

Graduate research, Columbia University, New York NY 2010 - present

Working with Prof. **Jack R. Norton** to study the catalysis and mechanisms of C=N bonds hydrogenation:

- Developed a remarkably effective catalyst for imine hydrogenation. (One million times more efficient than previously best one.)
- Discovered the first transition metal hydride complex efficient in both hydride and hydrogen atom transfer reactions. (kinetics and thermodynamics studies)
- Generated new synthesis pathway for 1,4-dihydropyridines through regioselective hydrogenation of pyridinium cations.
- Resolved the key diastereomers for enantioselective imine hydrogenations. (They remain unresolved for a decade.)

Undergraduate research, USTC, China 2008 - 2010

Worked with Prof. **Guangzhao Zhang** to study anti-fouling materials for coating:

- Designed, synthesized and characterized polyanhydride based block copolymers with anti-fouling and self-polishing properties. (independent research)

- Introduced anti-fouling property to hydrophobic polybutadiene-polyurethane surface through immobilization of zwitterionic poly(sulfobetaine methacrylate).

Summer Internship, UCLA, Los Angeles, CA 2009
Worked with Prof. **Robin L. Garrell** to study heterogeneous catalysis on microfluidic devices:

- Synthesized TEMPO-coated magnetic nanoparticles and performed heterogeneous oxidation of benzyl alcohol on droplet-based microfluidic device.

Teaching experience and other activities, Columbia University, New York NY

- Two years' teaching assistantship for 80 undergraduates in total. 2011 – 2013
- Research mentor for an undergraduate student. 2014
- Wrote NSF proposals with Prof. Jack R. Norton about mechanisms of hydride transfer from transition metal complexes. 2012, 2013
- Reviewed more than 5 manuscripts for JACS, Organometallics, Chemical Communications., ACS catalysis, etc. 2011 – present
- Group social director in charge of all group social activities for 11 people. 2012 – present

Publications and Presentations:

- **Hu, Y.**; Norton, J. R., Kinetics and Thermodynamics of H^-/H•/H^+ Transfer from a Rhodium(III) Hydride, *J. Am. Chem. Soc.,* **2014***, 136*, 5938–5948.
- **Hu, Y.**; Li, L.; Shaw, A. P.; Norton, J. R. Sattler, W; Yi, R., Synthesis, Electrochemistry, and Reactivity of New Iridium (III) and Rhodium (III) Hydrides, *Organometallics* **2012**, *31*, 5058–5064.
- **Hu, Y.**, Kinetics and Thermodynamics of H^-/H•/H^+ Transfer from a Rhodium(III) Hydride and Asymmetric Hydrogenation of Iminium Cations, Friday Synthesis Symposium, Chemistry Department of Columbia University, **2014**. (talk)
- **Hu, Y.**; Norton, J. R., Enantioenriched ruthenium hydride with an asymmetrically substituted Cp ligand, 246th ACS meeting, Indianapolis, IN, September **2013**, abstract # CATL-21. (talk)
- Norton, J. R.; **Hu, Y.**; Li, L.; Eberhart, M. S.; Shaw, A. P., Hydride Transfer from M-H: One Step vs Two, 244th ACS meeting, Philadelphia, Pennsylvania, August **2012**, abstract # CATL-67.

Other Honors:

- Cross-disciplinary Scholars in Science and Technology (CSST) program scholarship, UCLA (The program invites highly accomplished international students – 10 students per university – to study and engage in research at UCLA.) 2009
- Undergraduate Original Research Competition (2nd Prize), USTC 2008
- Chinese Physics Olympiad (2nd prize in Hubei Province, China) 2006
- Chinese Mathematical Olympiad (3rd prize in Hubei Province, China) 2006