

# Abhishek Khetan

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## Educational Qualifications

Year	Degree	Institute/University
2011 - present	Doctoral Candidate	Institute for Combustion Technology, RWTH Aachen University, Germany
2006 - 2011	B.Tech (9.1/10) and M.Tech (9.33/10) Major: Fluid and Thermal Sciences	Dept. of Mechanical Engineering, IIT Kanpur, India

## Research Experience & Internships

Sep 2014 - Jan 2015	Research Visit: Stability and Solvation Characteristics of Nonaqueous Electrolytes for Li-O <sub>2</sub> Batteries	Carnegie Mellon, USA
Sep 2012 - Nov 2012	Research Visit: Cathode Materials for Oxygen Reduction Reaction in Fuel Cells	DGIST, South Korea
May 2010 - Apr 2011	Master's Dissertation: Mathematical Modeling of Methane Recovery from Hydrate Reservoirs	IIT Kanpur, India
May 2009 - Jul 2009	Internship: Wire Mesh Sensor Measurements and Data Analysis for Hydrodynamics in a Trickle Bed Reactor	HZDR, Germany

## Publications

1. A. Khetan, A. Luntz, V. Viswanathan, [Trade-Offs in Capacity and Rechargeability in Nonaqueous Li-O<sub>2</sub> Batteries: Solution-Driven Growth versus Nucleophilic Stability](#), *J. Phys. Chem. Lett.*, 2015, 6 (7), 1254-1259
2. D. Kwak, A. Khetan, S. Noh, H. Pitsch, B. Han, [First Principles Study of Morphology, Doping Level, and Water Solvation Effects on the Catalytic Mechanism of Nitrogen-Doped Graphene in the Oxygen Reduction Reaction](#), *ChemCatChem*, 2014, 6, 2662-2670
3. A. Khetan, H. Pitsch, V. Viswanathan, [Solvent Degradation in Nonaqueous Li-O<sub>2</sub> Batteries: Oxidative Stability versus H-Abstraction](#), *J. Phys. Chem. Lett.*, 2014, 5 (14), 2419-2424
4. A. Khetan, H. Pitsch, V. Viswanathan, [Identifying Descriptors for Solvent Stability in Nonaqueous Li-O<sub>2</sub> Batteries](#), *J. Phys. Chem. Lett.*, 2014, 5 (8), 1318-1323
5. J. K. Seo, A. Khetan, M. H. Seo, H. Kim, B. Han, [First-principles thermodynamic study of the electrochemical stability of Pt nanoparticles in fuel cell applications](#), *J. Power Sources*, 2013, 238, 137-143
6. M. Aryanpour, A. Khetan, H. Pitsch, [An Activity Descriptor for Catalytic Reactions on Doped Cerium Oxide](#), *ACS Catal.*, 2013, 3 (6), 1253-1262

7. A. Khetan, M. K. Das, K. Muralidhar, [Analysis of Methane Production from a Porous Reservoir via Simultaneous Depressurization and CO<sub>2</sub> Sequestration](#), *Special Topics & Reviews in Porous Media - An International Journal*, 2013, 4 (3), 237-252
8. M. Schubert, A. Khetan, M. J. da Silva, H. Kryk, [Spatially resolved inline measurement of liquid velocity in trickle bed reactors](#), *Chem. Eng. J.*, 2010, 158 (3), 623-632

## Posters

1. A. Khetan, H. Pitsch, V. Viswanathan, Identifying Descriptors for Solvent Stability in Non-aqueous Li-O<sub>2</sub> Batteries, *The 17<sup>th</sup> International Meeting on Lithium Batteries*, 10-14 June 2014, Como, Italy
2. A. Khetan, H. Pitsch, B. C. Han, Structure & Activity of Pt on CeO<sub>2</sub>(111) Surface Using First Principles Thermodynamics, *Faraday Discussions 162-Fabrication, Structure and Reactivity of Anchored Nanoparticles*, 10-12 April 2013, Berlin, Germany

## Teaching

Oct 2013 - Mar 2014   Lecturer: Combustion Chemistry (Experimental), RWTH Aachen, Germany  
Jan 2011 - Apr 2011   Tutor: Fluid Mechanics, IIT Kanpur, India  
Jul 2010 - Nov 2010   Tutor: Programming & Numerical Analysis, IIT Kanpur, India