

# Pattanasak Teeratchanan

Lecturer  
Department of Physics  
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## EDUCATION

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- Ph.D. (Physics)** 2013-2017  
*University of Edinburgh, UK*  
Thesis: “First-principles studies of gas hydrates and clathrates under pressure”  
Advisor: Dr. Andreas Hermann
- M.Sc. (Materials Science and Engineering)** 2009-2012  
*University of California, Los Angeles, USA*  
Thesis: “First-principles studies of the Li-Na-Ca-N-H system: compound structures and hydrogen storage properties”  
Advisor: Dr. Vidvuds Ozolins
- B.Sc. (Physics)** 2003-2007  
*Prince of Songkhla University, Thailand*  
Thesis: “Controlling LCR meters via LabVIEW for testing piezoelectric materials”  
Advisor: Dr. Suwimon Dubost

## CURRENT RESEARCH

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- First-principles studies of gas hydrates under extreme conditions
- Band structure calculations in perovskite solar cells
- Interactions among defects and microstructure evolutions in metals under collision cascade.
- Physics education using novel technologies to aid in teaching.

## RESEARCH INTERESTS

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- Computational modeling and simulation of materials: first-principles studies
- Structure predictions of materials
- Phase stabilities: thermodynamics and kinetic mechanisms
- Effects of impurities, defects and dislocations

## RESEARCH EXPERIENCE

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- First-principles studies of ice, gas hydrates and clathrates under pressure, Centre of Science at Extreme Conditions, Edinburgh, UK (2013-2017)
- First-principles studies of solid state compound structures for hydrogen storage materials, UCLA, USA (2009-2012)
- Traffic wave modeling using non-linear wave theory, Mahidol University, Thailand (2008)
- LabVIEW software and interface for controlling LCR meters for testing piezoelectric materials, Prince of Songkhla University, Thailand (2006)
- Electron transport modeling in disorder organic layer using Monte-Carlo simulation, Mahidol University, Thailand (2006)

## AWARDS AND SCHOLARSHIPS

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Higher Educational Strategic Scholarships for Frontier Research Network	2009-2017
Development and Promotion of Science and Technology Talent Project	2000-2009

## PUBLICATIONS

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- C. Puttharusa, T. Chatchawaltheerat, and **P. Teeratchanan**, “Teaching the Moment of Inertia by Measuring the Angular Speed With a Smartphone’s Sensors”, *Phys. Edu.*, **56**(2), 2021
- M.E. Donnelly, **P. Teeratchanan**, C.L. Bull, J.S. Loveday, and A. Hermann, “Ostwald’s rule of stages and metastable transitions in the hydrogen-water system at high pressure”, *Phys. Chem. Chem. Phys.*, **20**(26853), 2018 (selected as “PCCP 2018 HOT Article”)
- J. Kosata, P. Merkl, **P. Teeratchanan**, and A. Hermann, “Stability of Hydrogen Hydrates from Second-Order Møller-Plesset Perturbation Theory”, *J. Phys. Chem. Lett.*, **9**(18), 2018
- D. Amos, M.E. Donnelly, **P. Teeratchanan**, C.L. Bull, A. Falenty, W.F. Kuhs, A. Hermann, and J.S. Loveday, “A Chiral Gas-Hydrate Structure Common to the Carbon Dioxide-Water and Hydrogen-Water Systems”, *J. Phys. Chem. Lett.*, **8**(4295), 2017 (selected as “ACS Editors’ Choice”)
- **P. Teeratchanan** and A. Hermann, “Computational phase diagrams of noble gas hydrates under pressure”, *J. Chem Phys*, **143**(15), 2015