Nakul Rampal

Email: nr472@cam.ac.uk

Personal website: http://www.nakulrampal.xyz / Twitter: @rampalnakul

Mobile: +44-737-787-5445

EDUCATION

University of Cambridge (Advisor: Prof. David Fairen-Jimenez, *Cambridge Trust Scholar*) — Cambridge, UK

Ph.D. in Chemical Engineering — *September 2019 - Present*

University of California, Berkeley (Advisor: Prof. Berend Smit, *Merit based Scholarship*) — Berkeley, CA

Master of Science in Chemical Engineering; GPA: 3.976/4 — *August 2016 – May 2017*

Manipal Institute of Technology (Thesis with Prof. Ateeque Malani at IIT Bombay) — Manipal, India

Bachelor of Technology in Chemical Engineering; GPA: 8.91/10 — *July 2011 – May 2015*

SELECTED PUBLICATIONS AS FIRST AUTHOR (⊥ denotes equal contribution, * denotes corresponding author)

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1. Mark Carrington⊥, Nakul Rampal⊥, David G Madden, Daniel O'Nolan, Nicola Pietro Maria Casati, Giorgio Divitini, Ritums Cepitis, Jesus A Martin Ilan, Ceren Camur, Joaquin Silvestre-Albero, Felix Zamora, Sergei Taraskin, Karena W Chapman, David Fairen-Jimenez*. Sol-Gel Processing of a Covalent Organic Framework for the Generation of Hierarchically Porous Monolithic Adsorbents, *accepted in* **Chem**, 2022
2. David G. Madden*⊥, Daniel O'Nolan⊥, Nakul Rampal⊥, Robin Babu, Ceren Camur, Ali N. Al Shakhs, Shi-Yuan Zhang, Graham A. Rance, Javier Perez, Nicola Pietro Maria Casati, Carlos Cuadrado-Collados, Denis O'Sullivan, Nicholas P. Rice, Thomas Gennett, Philip Parilla, Sarah Shulda, Katherine E Hurst, Vitalie Stavila, Mark D Allendorf, Joaquin Silvestre-Albero, Alexander C. Forse, Neil R. Champness, Karena W Chapman*, David Fairen-Jimenez*. Densified HKUST-1 Monoliths as a Route to High Volumetric and Gravimetric Hydrogen Storage Capacity, *accepted in the* **Journal of the American Chemical Society,** 2022
3. Johannes Osterrieth⊥, James Rampersad⊥, David G Madden⊥, Nakul Rampal⊥, Luka Skoric, Bethany Connolly, Mark Allendorf, …… Omar Yaghi, Bing Zhang, Cafer Yavuz, Thien Nguyen, Felix Zamora, Carmen Montoro, Hong-Cai Zhou, Kirchon Angelo, David Fairen-Jimenez*. How reproducible are Surface Areas Calculated from the BET Equation? **Advanced Materials**, 2022 (Highlighted in Chemistry World).
4. Nakul Rampal⊥, Abdulmalik Ajenifuja⊥, Andi Tao⊥, Christopher Balzer, Matthew S. Cummings, Arwyn Evans, Rocio Bueno-Perez, David J. Law, Camille Petit, Flor Siperstein, Martin P. Attfield, Megan Jobson, Peyman Z. Moghadam, David Fairen-Jimenez*. The development of a comprehensive toolbox based on multi-level, high-throughput screening of MOFs for CO/N_2 separations, **Chemical Science**, 2021, 12(36), 12068-12081

SELECTED PUBLICATIONS AS CONRIBUTING AUTHOR (⊥ denotes equal contribution, * denotes corresponding author)

5. David H Le, Ryan P Loughan, Andrzej Gladysiak, Nakul Rampal, Isabelle A Brooks, Ah-Hyung Alissa Park, David Fairen-Jimenez, Kyriakos C. Stylianou*. Lanthanide metal-organic frameworks for the fixation of CO_2 under aqueous-rich and mixed-gas conditions, **Journal of Materials Chemistry A**, 2022
6. Xianhui Tang, Hong Jiang, Yubing Si, Nakul Rampal, Wei Gong, Cheng Cheng, Xing Kang, David Fairen-Jimenez, Yong Cui, Yan Liu*. Endohedral functionalization of chiral metal-organic cages for encapsulating achiral dyes to induce circularly polarized luminescence, **Chem**, 7(10), 2021, 2771-2786
7. Xu Chen, Yunhui Zhang, Nakul Rampal, Rachel Hewitt, Giorgio Divitini, Christopher A O'Keefe, Xiewen Liu, Daniel J Whitaker, John W Wills, Ravin Jugdaosingh, Jonathan J Powell, Han Yu*, Clare P Grey, Oren A Scherman, David Fairen-Jimenez*. Formulation of Metal-Organic Framework-Based Drug Carriers by Controlled Coordination of Methoxy PEG Phosphate: Boosting Colloidal Stability and Redispersibility, **Journal of the American Chemical Society**, 2021, 143(34), 12557-13572 (Highlighted in C&EN; Front cover)
8. David Madden, Robin Babu, Ceren Camur, Nakul Rampal, Joaquin Silvestre-Albero, Teresa Curtin, David Fairen-Jimenez*. Monolithic metal-organic frameworks for carbon dioxide separation, **Faraday Discussions**, 2021, 231, 51-65
9. Bablu Meghwal, Nakul Rampal, Ateeque Malani*, Investigation of Adhesion between Heavy oil/Bitumen and Reservoir Rock: A Molecular Dynamics Study, **Energy & Fuels**, 2020, 34(12), 16023-16034

10. Kathryn S. Deeg, Daiane Damasceno Borges, Daniele Ongari, Nakul Rampal, Leopold Talirz, Aliaksandr V. Yakutovich, Johanna M. Huck, Berend Smit*. In Silico Discovery of Covalent Organic Frameworks for Carbon Capture, **ACS Applied Materials & Interfaces,** 2020, 12, 19, 21559-21568
11. Sudi Jawahery, Nakul Rampal, Seyed Mohamad Moosavi, Mathew Witman, Berend Smit*. *Ab Initio* Flexible Force Field Development for Metal-Organic Frameworks Using Non-Bonded Dummy Models to Describe Coordination Bonds, **Journal of Chemical Theory and Computation**, 2019, 15, 6, 3666-3677
12. Meena B. Singh, Nakul Rampal, Ateeque Malani*. Structural Behavior of Isolated Asphaltene Molecules at the Oil-Water Interface, **Energy & Fuels**, 2018, 32(8), 8259-8267

PREPRINTS ($^{\perp}$ denotes equal contribution, * denotes corresponding author)

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13. Ceren Camur, Robin Babu, Jose A. Suarez del Pino, Nakul Rampal, Javier Perez-Carvajal, Phiipp Hugenell, Sebastian-Johannes Ernst, Joaquin Silvestre-Albero, Inhar Imaz, David G. Madden, Daniel Maspoch, David Fairen-Jimenez*. Monolithic Zirconium-based Metal-Organic Frameworks for Energy-Efficient Water Adsorption Applications, *under review in the* **Journal of the American Chemical Society,** 2022

INVITED TALKS/PRESENTATIONS

1. Invited talk at the Nanyang Technological University (School of Physical and Mathematical Sciences), 21st January 2022.
2. Presentation (virtual) at the 2nd International School on Porous Materials: MOFschool2021, Lake Como School of Advanced Studies, 21st-25th June 2021.
3. Presentation (virtual) at the bp-ICAM Annual Conference 2020, 20th-21st October 2020
4. Invited talk at Chalmers University of Technology (Department of Physics), 4th February 2019
5. Invited talk at Karlsruhe Institute of Technology (Department of Theoretical Chemical Biology), 1st February 2019
6. Invited talk at the Theoretical Chemistry Seminar at Norwegian University of Science and Technology (NTNU), 14th December 2018

AWARDS

1. Cambridge International Scholarship awarded by the Cambridge Trust
2. Trinity-Henry Barlow Scholarship (Honorary) awarded by Trinity College, Cambridge
3. Merit based Scholarship in Fall 2016 and Spring 2017 awarded by UC, Berkeley
4. Top 3 of the graduating class at MIT, Manipal
5. School Topper Medal in the Unified Cyber Olympiad
6. School Wiz Kid Medal in the 10th National Science Olympiad
7. Winner of the Global Young Scientists Summit 2021 Video Competition
8. Full bursary to attend MOFSchool2021 provided by the Italian Crystallographic Association
9. Full bursary to attend the Global Young Scientists Summit 2022 provided by the National Research Foundation, Singapore

TEACHING EXPERIENCE

1. Graduate Student Instructor for Mathematical Methods in Geophysics, Spring 2017 at UC, Berkeley – *Nominated for the Outstanding GSI Award*
2. Co-instructor for a 6-week summer course on 'Adsorption and Nanoporous Materials' run by Cambridge Enterprise, Summer 2021 (1 course) and 2022 (2 courses)

MENTORING EXPERIENCE

1. Mythili Sutharson, MPhil. in Advanced Chemical Engineering, Oct' 2019 to Aug' 2020 – Currently an Associate Consultant at Bain
2. Hiu Ki Wong, Part IIB in Chemical Engineering, Oct' 2020 to April 2021 – Currently a Data Engineer at Pirical
3. George Irving, Part IIB in Chemical Engineering, Oct' 2021 to April 2022 – *Awarded the 1st prize for the best poster presentation*
4. Khalid Al-Otaibi, MPhil. in Advanced Chemical Engineering, April 2022 to Ongoing (Saudi Aramco)