Name: Hayder Abdulkareem Mohsin Al-Atabi

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Education

1. Ph.D. in Chemical Engineering, Kansas State University, USA.
2. Complex Fluid Flows Graduate Certificate, Mechanical and Nuclear Engineering, Kansas State University, USA.
3. M.Sc. in Chemical Engineering, the University of Technology, Baghdad, Iraq.
4. B.Sc. in Chemical Engineering, the University of Technology, Baghdad, Iraq.

Research Interest

Al-Atabi's research is focused on the applications of chemical engineering principles, transport phenomena and thermodynamics, to improve advanced materials processing. Specific areas of interest include crystal growth, epitaxy, and materials (including catalysts) characterizations.

Publications

1- Hayder A. Al Atabi, Zahraa F. Al Auda, B. Padavala, M. Craig, K. Hohn, and James H. Edgar. "Sublimation Growth and Characterization of Erbium Nitride Crystals."

2- Hayder A. Al-Atabi, Neelam Khan, Edil Nour, Joseph Mondoux, Yi Zhang, and J. H. Edgar. "Bulk (100) scandium nitride crystal growth by sublimation on tungsten single crystal seeds."

3- Hayder A. Al-Atabi, Mohamad I. Cheikh, M.H. Hosni, J.H. Edgar. "A cooling fin to enhance the efficiency of crystal growth by physical vapor transport."

4- Hayder Al-Atabi, Qiye Zheng, John S. Cetnar, David Look, David G. Cahill, and James H. Edgar. "Properties of bulk scandium nitride crystals grown by physical vapor transport."

5- Balabalaji Padavala, H. Al Atabi, L. Tengdelius, J. Lu, H. Högberg, and J.H. Edgar. "Cubic boron phosphide epitaxy on zirconium diboride."

6- Zahraa Al-Auda, Hayder Al-Atabi, Xu Li, Quanxing Zheng, Keith L. Hohn. "Conversion of methyl ethyl ketone to butenes over bifunctional catalysts."

7- Zahraa Al-Auda, Hayder Al-Atabi and Keith L. Hohn. "Metals on ZrO_2: Catalysts for the Aldol Condensation of Methyl Ethyl Ketone (MEK) to C_8 Ketones."

8- Zahraa Al-Auda, Hayder Al-Atabi, Xu Li, Prem Thapa and Keith Hohn. "Conversion of 5-Methyl-3-Heptanone to C_8 Alkenes and Alkane over Bifunctional Catalysts."

9- Micah S. Haseman, Brenton A. Noesges, Seth Shields, John S. Cetnar, Amber N. Reed, Hayder A. Al-Atabi, James H. Edgar, and Leonard J. Brillson. "Cathodoluminescence and x-ray photoelectron spectroscopy of ScN: Dopant, defects, and band structure."

10- M. A. McKay, Q. W. Wang, H. A. Al-Atabi, Y. Q. Yan, J. Li, J. H. Edgar, J. Y. Lin, and H. X. Jiang. "Band structure and infrared optical transitions in ErN."

11- Hayder Abd Al-kaream Muhsin and Mohammad Fadhil Abid. "Experimental study of liquid dispersion in bubble column."

12- Hayder A. Mohsin. "The Effect of Surface Tension on Hydrodynamics of Partitioned Bubble Column Reactors."

13- Karima M. Butrus, Hayder A. Mohsin, and Ali R.Mohammad Jawad. "Modeling and Control of pH Process forWeak Acid-Weak Base System."

14- Safa A. Al-Naimi, Salih A.J. Salih, and Hayder A. Mohsin. “Simulation study of mass transfer coefficient in slurry bubble column reactor using neural network.”

Patents

1. Methods of Growing Single Crystal Materials.
   WO2020023725A1, WIPO (PCT).
   Inventors: Hayder Al-Atabi and James Edgar.

Conferences

1. Hayder A. Al Atabi, Zahraa F. Al Auda, B. Padavala, M. Craig, K. Hohn, and James H. Edgar. “Sublimation Growth and Characterization of Erbium Nitride Crystals”. American Conference on Crystal Growth and Epitaxy-21 and Organometallic Vapor Phase Epitaxy-18 (ACCGE-21/OMVPE-18), Santa Fe, New Mexico, USA (2017). (Oral presentation)
2. James H. Edgar, Hayder Al-Atabi, John S. Cetnar, David Look, Zheng Qiye, and David Cahill. “Properties of Bulk Scandium Nitride Crystals Grown by Physical Vapor Transport.” 61st Electronic Materials Conference (EMC), at University of Michigan, Ann Arber, MI, USA (2019).
3. Z. Al-Auda, H. Al-Atabi, Q. Zheng, and K.L. Hohn, “Catalysts for Conversion of Methyl Ethyl Ketone to Butenes”, ACS Midwest Regional Meeting (MWRM), 2017, at University of Kansas, Lawrence, KS, USA (2017).
4. Z. Al-Auda, H. Al-Atabi, Q. Zheng, and K.L. Hohn, “Catalysts for Conversion of Methyl Ethyl Ketone to Butenes”, AICHE National Meeting, Minneapolis, MN, USA (2017).
5. 51st American Chemical Society (ACS) Midwest Regional Meeting (MWRM) at University of Kansas State, Manhattan, KS, UAS (2016). (Attending)
6. Hayder. A. Mohsin. “The Effect of Surface Tension on Hydrodynamics of Partitioned Bubble Column Reactors.” The second scientific conference of the college of engineering, University of Al-Qadisyiah, Iraq (2009). (Oral Presentation)

Honors and Awards

1- Letter of thanks and appreciation from *the Iraqi minister of the higher education* for listing Al-Atabi's research papers in Nature index in 2020.
2- Letter of thanks and appreciation from *the president of the University of Technology* for publishing Al-Atabi's research papers in distinguished journals in 2019.

Skills

1- Density Functional Theory (DFT) via VASP.
2- CFD via Ansys Fluent.
3- CFD via OpenFOAM.
4- Visualization for Electronic STructural Analysis (VESTA).
5- Chemical process simulation via COMSOL.
6- GAMS program for chemical process optimization.
7- Aspen HYSYS for chemical process simulation.
8- MATLAB.
9- Wolfram Mathematica.