


# DR. MUHAMMAD FAHAD ARSHAD

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## DIGITAL IDENTIFIER LINKS

- Scopus ID: 57219161795
- ORCID ID: 0000-0003-1828-9458
- Google Scholar ID: fwiNZasAAAAJ
- Researcher ID: rid102402
- Research gate: <https://www.researchgate.net/profile/Muhammad-Fahad-Arshad>

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## SKILLS

**Computational/Modeling:** Chemical Kinetics(Cantera, Chemkin), DFT (Quantum espresso, Material Studio, Vasp, Gaussian), Python, Latex, Molecular dynamics (Lammps).

**Experimental/Analytical Techniques:** Analysis of XRD, XPS, RAMAN, BET, SEM and EDS technical data, Sol-gel, Flame synthesis, Wet Impregnation, CVD.

**General/Technical:** Technical writing, Adobe Illustrator vector drawing, CAD/CAM, Application studies.

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## EDUCATION

**New Technology Lab, University of Chinese Academy of Sciences**

**PhD Engineering Thermophysics**

(Beijing, China)

**August 2017-2023**

- Conducted doctoral research in Power Engineering & Engineering Thermophysics with a focus on heterogeneous catalysis, photocatalysis, hydrogen production, and DFT calculations. Innovated by designing and implementing novel photocatalytic and photolysis reactors, leading to impactful experimental results. Collaborated extensively with international and domestic researchers, co-authoring multiple publications that enhanced the lab's academic visibility and scientific network.

**University of Engineering and Technology**

(Lahore, Pakistan)

**August 2012-2016**

- BSc Mechanical Engineering, Fluid Dynamics

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## PROFESSIONAL EXPERIENCE

**University Mohammed VI Polytechnic (UM6P)**

(Ben Guerir, Morocco)

**Post-Doctorate researcher CBS (chemical and biochemical sciences)**

**2025-Present**

- Hydrogen production, CO<sub>2</sub> valorization, molecular dynamics, DFT, LLM, Machine learning

**Institute Of Engineering Thermophysics, Chinese Academy of Sciences**

**Post-Doctorate Researcher**

(Beijing, China)

**2023-2024**

- Provided comprehensive supervision for all international researchers in the laboratory, directly mentoring two international students from 2021 to 2024. Guided their research development and experimental work, significantly enhancing their academic capabilities and practical skills in catalysis and thermophysical systems.

**PITAC (Pakistan Institute Of Technical and Assistant Centre)**

**Interne Engineer**

(Lahore, Pakistan)

**2016-2017**

- Learned designing and technical skills related to CAD/CAM, designing, drawing and practical engineering.
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## TEACHING EXPERIENCE

University of Chinese Academy of Sciences

Graduate Teaching Assistant, Department (Beijing, China)

2020-2021

- Taught postgraduate students and helped teacher with teaching, examination and homework.
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## PUBLICATIONS

- Arshad, M. F., El Kasmi, A., Waqas, M., & Tian, Z.Y. (2021). Insight into one-step synthesis of active amorphous La-Co thin films for catalytic oxidation of CO. Applications in Energy and Combustion Science, 5(October 2020), 100021. <https://doi.org/10.1016/j.jaecs.2020.100021>
  - Arshad, M. F., Wu, L. N., El Kasmi, A., Qin, W., & Tian, Z. Y. (2021). Ab Initio Calculation of Surface Thermochemistry for Popular Solid Transition Metal-Based Species. ACS Omega, 6(35), 22525-22536. <https://doi.org/10.1021/acsomega.1c02178>
  - Arshad, M. F., El Kasmi, A., Fonzeu Monguen, C. K., Daniel, S., Waqas, M., Tian, Z.-Y. (2023). "Insights into the Role of Carbonates and Hydroxides in La-Co Oxides for CO Catalytic Conversion." ES Energy & Environment 20: 908. <https://doi.org/10.30919/esee908>
  - Yousuf M, Arshad M.F, Tian Z-Y. Thermodynamic properties calculations of Cu-based species. Int J Chem Kinet. 2024; 56: 310-322. <https://doi.org/10.1002/kin.21708>
  - El Kasmi, A., Arshad, M. F., Waqas, M., Monguen, C. K. F., Azar, F.-Z., Wu, L.-N., & Tian, Z.-Y. (2023). Insights into catalytic oxidation mechanism of CO over Cu catalyst: Experimental and modeling study. Materials Research Bulletin, 112343. <https://doi.org/10.1016/J.MATERRESBULL.2023.112343>
  - el Kasmi, A., Waqas, M., Wu, L. N., Arshad, M. F., & Tian, Z. Y. (2021). CO2 effect on catalytic abatement of VOC emissions over Cu-Co binary oxide films. Materials Research Bulletin, 143, 111456. <https://doi.org/10.1016/j.materresbull.2021.111456>
  - Wu, L. N., Tian, Z. Y., Kasmi, A. el, Arshad, M. F., & Qin, W. (2021). Mechanistic study of the CO oxidation reaction on the CuO (111) surface during chemical looping combustion. Proceedings of the Combustion Institute, 38(4), 5289-5297. <https://doi.org/10.1016/j.proci.2020.06.376>
  - Waqas, M., El Kasmi, A., Wu, L. N., Arshad, M. F., Qin, W., & Tian, Z. Y. (2021). Catalytic combustion of CO over Cu-doped iron oxides: CO2 effects on activity. Fuel, 289(November), 119760. <https://doi.org/10.1016/j.fuel.2020.119760>
  - Daniel, S., Monguen, C. K. F., El Kasmi, A., Arshad, M. F., & Tian, Z. Y. (2022). Oxidative Dehydrogenation of Propane to Olefins Promoted by Zr Modified ZSM-5. Catalysis Letters 2022, 1-15. <https://doi.org/10.1007/S10562-022-03977-6>
  - Fonzeu Monguen, C. K., el Kasmi, A., Arshad, M. F., Kouotou, P. M., Daniel, S., & Tian, Z.Y. (2022). Oxidative Dehydrogenation of Propane into Propene over Chromium Oxides. Industrial & Engineering Chemistry Research, 61(13), 4546-4560. <https://doi.org/10.1021/acs.iecr.2c00813>
  - Fonzeu Monguen, C. K., El Kasmi, A., Daniel, S., Arshad, M. F., & Tian, Z. Y. (2022). Structure sensitivity of propane partial oxidation over chromium-manganese binary oxides. Proceedings of the Combustion Institute. <https://doi.org/10.1016/J.PROCI.2022.09.043>
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## CONFERENCES

- Arshad, M. F., El Kasmi, A., Waqas, M., & Tian, Z.Y. (2020). Insight into one-step synthesis of active amorphous La-Co thin films for catalytic oxidation of CO. Chinese Combustion Symposium (Tianjin)
  - Arshad, M. F., Wu, L. N., El Kasmi, A., Qin, W., & Tian, Z. Y. (2021). Ab Initio Calculation of Surface Thermochemistry for Popular Solid Transition Metal-Based Species. European Combustion meeting (Australia)
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## AWARDS AND HONORS

- Outstanding International student, (University of Chinese academy of sciences), **2022**
  - CAS-TWAS Fellowship, (The world Academy of sciences), **2020-2024**
  - Belt and Road Fellowship, (University of Chinese academy of sciences), **2017-2020**
  - Top crisis manager, (University of Engineering and Technology) **2016**
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## LEADERSHIP AND SERVICES

- University of Chinese Academy of Sciences: Guided students and helped International student office in organizing programs and translation from mandarin to English.
  - Institute of Engineering Thermophysics: Leader of International staff and students, Organized weekly meetings, helped with their research, experiments and calculations.
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## REFERENCES

*References available upon request, please contact me for details.*

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