

*Dr. Awad Alquaity is an Assistant Professor in the Mechanical Engineering Department at King Fahd University of Petroleum & Minerals (KFUPM). He holds an M.S. in Mechanical Engineering from KFUPM (2011) and a Ph.D. in Mechanical Engineering from KAUST (2016), where he was part of the Clean Combustion Research Center. At KAUST, his research focused primarily on developing and using sensitive laser sensors and mass spectrometers to investigate the combustion chemistry of fuels in different fundamental combustion reactors. Dr. Alquaity worked as a postdoctoral researcher at the Institute for Combustion Technology at RWTH Aachen University in Germany before joining KFUPM in September 2019. At Aachen University, he performed simulations and experiments to investigate the combustion chemistry of novel sustainable fuels as part of a larger effort to identify future fuels for the German market. He has co-authored more than 20 international journal publications, 2 book chapters and was granted a US patent for his work on sensitive laser sensor development. He works in the areas of combustion, heat transfer, spectroscopy, and multiphase flow.*

## Awad Bin Saud Alqaity

Assistant Professor of Mechanical Engineering, College of Engineering and Physics,  
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### Academic Qualifications

- 2011 – 2016** : Ph.D. Mechanical Engineering  
Clean Combustion Research Center (CCRC)  
King Abdullah University of Science & Technology (KAUST), Thuwal, KSA  
Advisor: Prof. Aamir Farooq  
Dissertation: Sensitive Mid-IR Laser Sensor Development and Mass Spectrometric Measurements in Shock Tube and Flames
- 2009 – 2011** : M.S. Mechanical Engineering  
King Fahd University of Petroleum and Minerals, Dhahran, KSA
- 2005 – 2009** : B. Tech. Mechanical Engineering  
National Institute of Technology, Warangal, India

### Professional Experience

- 08/2019 - Present**: Assistant Professor of Mechanical Engineering  
King Fahd University of Petroleum and Minerals, Dhahran, KSA
- 03/2017- 07/2018** : Postdoctoral Researcher, Institute for Combustion Technology, Mechanical Engineering  
RWTH Aachen University, Aachen, Germany

### Awards and Recognition

- 2011 KAUST Fellowship to pursue Ph.D.  
2009 Research Assistantship from KFUPM to pursue M.Sc.  
2008 Certificate of Merit in B.Tech Mechanical Engineering  
2007 Merit scholarship in III year of B.Tech Mechanical Engineering.

### Professional Affiliations

The American Society of Mechanical Engineers  
The Combustion Institute

### Management Responsibilities

- 2020 – Present Member, Curriculum Advisory Committee, Mechanical Engineering Department  
2020 Coordinator, KFUPM Student Scientific Forum, Mechanical Engineering Department  
2019-2020 Engineering Experience Enrichment Committee, Mechanical Engineering Department

### Intellectual Property and Selected Journal Publications (ORCID ID: 0000-0002-9306-0154)

1. Alqaity, Awad Bin Saud, and Aamir Farooq. "Cavity ring-down spectroscopic system and method." U.S. Patent 9,606,093, issued March 28, 2017

1. Jacobs, S., Döntgen, M., **Alqaity, A.B.S.**, Hesse, R., Kruse, S., Beeckmann, J., Kröger, L.C., Morsch, P., Leonhard, K., Pitsch, H. and Heufer, K.A., 2021. A Comprehensive Experimental and Kinetic Modeling Study of the Combustion Chemistry of Diethoxymethane. *Energy & Fuels*, 35(19), 2021.
2. Jacobs S, Döntgen M, **Alqaity ABS**, Kopp WA, Kröger LC, Burke U, et al. Detailed kinetic modeling of dimethoxymethane. Part II: Experimental and theoretical study of the kinetics and reaction mechanism. *Combust Flame* 2019.
3. Tripathi R, Ramalingam AK, Minwegen H, **Alqaity ABS**, Heufer KA, Pitsch H. Unraveling the high reactivity of 3-methyltetrahydrofuran over 2-methyltetrahydrofuran through kinetic modeling and experiments. *Proc Combust Inst* 2019.
4. **Alqaity ABS**, Chen B, Han J, Selim H, Belhi M, Karakaya Y, et al. New insights into methane-oxygen ion chemistry. *Proc Combust Inst* 2017.
5. **Alqaity ABS**, Utsav KC, Popov A, Farooq A. Detection of shock-heated hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) by off-axis cavity-enhanced absorption spectroscopy (OA-CEAS). *Appl Phys B* 2017.
6. **Alqaity ABS**, Giri BR, Lo JMH, Farooq A. High-Temperature Experimental and Theoretical Study of the Unimolecular Dissociation of 1,3,5-Trioxane. *J Phys Chem A* 2015.

### ***Book Chapter***

Javed T, Ahmed A, Raman V, **Alqaity ABS**, Johansson B. Combustion-Based Transportation in a Carbon-Constrained World—A Review. *Pollutants from Energy Sources*, Springer; 2019, p. 7–34.

### ***Funded Research Projects***

1. Startup Research Grant, KFUPM Deanship of Scientific Research, Principal Investigator: Awad Alqaity, August 2020 to July 2021
2. Directed Research Grant, KFUPM Deanship of Scientific Research, Co-Investigator: Awad Alqaity, April 2021 to March 2023
3. Hydrogen Internal Combustion Engine, IRC for Hydrogen and Energy Storage, Co-Investigator: Awad Alqaity, July 2021 to June 2023
4. Artificial Intelligence Based Modeling of Fuel Properties, IRC for Refining and Petrochemicals, Co-Investigator: Awad Alqaity, July 2021 to June 2023

### ***Reviewer Service***

Proceedings of the Combustion Institute  
 The Journal of Physical Chemistry A  
 Combustion Science and Technology  
 Society of Automotive Engineering  
 Energy and Environment  
 ASME Journal of Energy Resources Technology