

# Dapeng Liu

KAUST, Thuwal, Jeddah, 23955-6900, Saudi Arabia  
+966 054-451-8521 | dapeng.liu@kaust.edu.sa |

## EDUCATION

KAUST, Clean Combustion Research Center (CCRC)	Jeddah, Saudi Arabia
<i>PhD candidate in mechanical engineering; GPA: 3.72/4.0; Supervised by Prof. Aamir Farooq</i>	<i>Aug 2015 - Present</i>
<u>Relative Coursework</u> Combustion kinetics, Spectroscopy, Heat and mass transfer, ...	
<u>Awards</u> Full scholarship CCRC best poster award(2018) Lean Six Sigma-Yellow Belt for students	
Xi'an Jiaotong University (XJTU),	<i>Xi'An, China</i>
<i>Bachelor of energy and power engineering (top 15%)</i>	<i>Aug 2010 - Jun 2014</i>
<u>Awards</u> 1st prize in XJTU technology innovation competition outstanding student	

## EXPERTISE

- Independent development of sensors for gas-phase species diagnostic from room temperature to combustion conditions
- Independent design and conduction of high-precision rate coefficients measurements
- The operation, alignment, and maintenance of lasers including Ring-Dye Laser, Ti-Sapphire laser,etc.
- The operation, alignment, and maintenance of external frequency doubler/tripler/quadrupler
- The troubleshooting and maintenance of shock tube and its Accessories(pumps, sweagelok,heating solution, data acquisition system (DAQ), etc)
- Proficient in optics: iris, mirrors, lens, filters, beam splitters, etc
- Profound knowledge in combustion kinetics, elementary rate coefficients, kinetic modelling

## PUBLICATIONS

1. **First aromatic ring formation by the radical-chain reaction of vinylacetylene and propargyl**  
Hanfeng Jin, Lili Xing, Dapeng Liu, Junyu Hao, Jiuzhong Yang, Aamir Farooq  
*Combustion and Flame*, 2021 [paper]
2. **On the Redox Reactions between Allyl Radicals and NOx**  
Dapeng Liu, Milán Szőri, Béla Viskolcz, Et-touhamiEssbar, Binod Giri, Aamir Farooq  
*Proceedings of the Combustion Institute*, 2020 [paper]
3. **Kinetics and Thermochemistry of Cyclohexadienes Reactions with OH Radicals**  
Dapeng Liu, Milán Szőri, Béla Viskolcz, Lam K. Huynh, Binod Giri, Aamir Farooq  
*Proceedings of the Combustion Institute*, 2020 [paper]
4. **High Temperature Branching Ratio of Acetaldehyde + OH Reaction**  
Dapeng Liu, Binod Giri, Aamir Farooq  
*Proceedings of the Combustion Institute*, 2020 [paper]
5. **A high temperature shock tube study of phenyl recombination reaction using laser absorption spectroscopy**  
Hanfeng Jin, Dapeng Liu, Binod Giri, Aamir Farooq  
*Proceedings of the Combustion Institute*, 2020 [paper]

6. Chemical kinetics of hydroxyl reactions with cyclopentadiene and indene  
Hanfeng Jin, Dapeng Liu, Jiabiao Zou, Junyu Hao, Can Shao, Mani Sarathy, Aamir Farooq  
*Combustion and Flame*, 2020 [paper]
7. Insights into the Reactions of Hydroxyl Radical with Diolefins from Atmospheric to Combustion Environments  
Fethi Khaled, Binod Giri, Dapeng Liu, Emmanuel Assaf, Christa Fittschen, Aamir Farooq  
*The Journal of Physical Chemistry A*, 2020 [paper]
8. QCL-Based Dual-Comb Spectrometer for Multi-Species Measurements at High Temperatures and High Pressures  
Guangle Zhang, Raphael Horvath, Dapeng Liu, Markus Geiser, Aamir Farooq  
*Proceedings of the Combustion Institute*, 2020 [paper]
9. A mid-infrared diagnostic for benzene using a tunable difference-frequency-generation laser  
Mohammad Khaled Shakfa, Mhanna Mhanna, Hanfeng Jin, Dapeng Liu, Khalil Djebbi, Marco Marangoni, Aamir Farooq  
*Sensors*, 2020 [paper]
10. Cyclic Ketones as Future Fuels: Reactivity with OH Radicals (journal cover paper)  
Dapeng Liu, Binod Giri, Aamir Farooq  
*The Journal of Physical Chemistry A*, 2019 [paper]
11. A shock tube kinetic study on the branching ratio of methanol + OH reaction  
Dapeng Liu, Binod Giri, Aamir Farooq  
*Proceedings of the Combustion Institute*, 2018 [paper]
12. A theoretical and shock tube kinetic study on hydrogen abstraction from phenyl formate  
Hongbo Ning, Dapeng Liu, Junjun Wu, Liuhao Ma, Wei Ren, Aamir Farooq  
*Physical Chemistry Chemical Physics*, 2018 [paper]
13. H-Abstraction by OH From Large Branched Alkanes: Overall Rate Measurements and Site-Specific Tertiary Rate Calculations  
Dapeng Liu, Fethi Khaled, Binod Giri, Emmanuel Assaf, Christa Fittschen, Aamir Farooq  
*The Journal of Physical Chemistry A*, 2017 [paper]

## PRESENTATIONS

1. A shock tube kinetic study on the reaction of 1,3 and 1,4-cyclohexadiene + OH (oral presentation)  
Dapeng Liu, Binod Giri, Milán Szőri, Béla Viskolcz, Lam K. Huynh, Aamir Farooq  
*38th international symposium on combustion, 2021, Adelaide, Australia* [slides]
2. On the Redox Reactions between Allyl Radicals and NO<sub>x</sub> (oral presentation)  
Dapeng Liu, Binod Giri, Milán Szőri, Béla Viskolcz, Aamir Farooq  
*38th international symposium on combustion, 2021, Adelaide, Australia* [slides]
3. High Temperature Branching Ratio of Acetaldehyde + OH Reaction (oral presentation)  
Dapeng Liu, Binod Giri, Aamir Farooq  
*38th international symposium on combustion, 2021, Adelaide, Australia* [slides]
4. A shock tube kinetic study on Branching Ratio of Methanol + OH Reaction (best poster award)  
Dapeng Liu, Binod Giri, Aamir Farooq  
*KAUST Research Workshop: Physics of Turbulent Combustion, 2019, Thuwal, Saudi Arabia* [slides]

5. A shock tube kinetic study on the reaction of cyclopentanone/cyclohexanone + OH (oral presentation)  
Dapeng Liu, Binod Giri, Aamir Farooq  
*The 11th U.S. National Combustion Meeting, 2019, Pasadena, U.S.A* [slides]
6. A shock tube study on the branching ratios of OH + methanol (oral presentation)  
Dapeng Liu, Binod Giri, Aamir Farooq  
*37th international symposium on combustion, 2018, Dublin, Ireland* [slides]
7. High-temperature rate constant measurement for the reaction of GVL with OH (oral presentation)  
Dapeng Liu, Fethi Khaled, Aamir Farooq  
*11th Asia-Pacific Conference on Combustion, 2017, Sydney, Australia* [slides]
8. Shock Tube Rates Measurements for H-Abstraction by OH from Nine Large Alkanes (poster)  
Dapeng Liu, Fethi Khaled, Binod Giri, Aamir Farooq  
*8th European Combustion Meet, 2017, Dubrovnik, Croatia* [slides]

## REPRESENTATIVE PROJECTS & INNOVATION

---

### The diagnostic of phenyl radical(paper in preparation)

- Innovative implement of new phenyl radical precursor:nitrosobenzene
- Localization of water heating glass flow system for accommodating the precursor with low-vapor pressure and strong adsorption tendency to metal wall
- Two color diagnostic (IR for NO and UV-Vis for Phenyl radical); take advantage of the well-characterized NO spectrum to calibrate the phenyl cross section
- Trace of channel-specific product for branching ratio study (NO and Phenyl for nitrobenzene pyrolysis (on-going))

### Chemical thermometer Calibration: cyclohexene=1,3-butadiene + ethylene(measurement succeeded)

- Sensitive diagnostic of 1,3-butadiene in UV range ( sub-ppm detection limit at 1000 K, 1bar)
- Concentration of cyclohexene decreased to 100 ppm from literature experiment's 3 %
- Temperature change from the reaction enthalphy is no longer concern
- Reliable rate coefficients data obtained for calibration of this chemical thermometer))

## WORK EXPERIENCE

---

Alfa Laval (Jiangyin) Manufacturing Co., Ltd.

Production Engineer

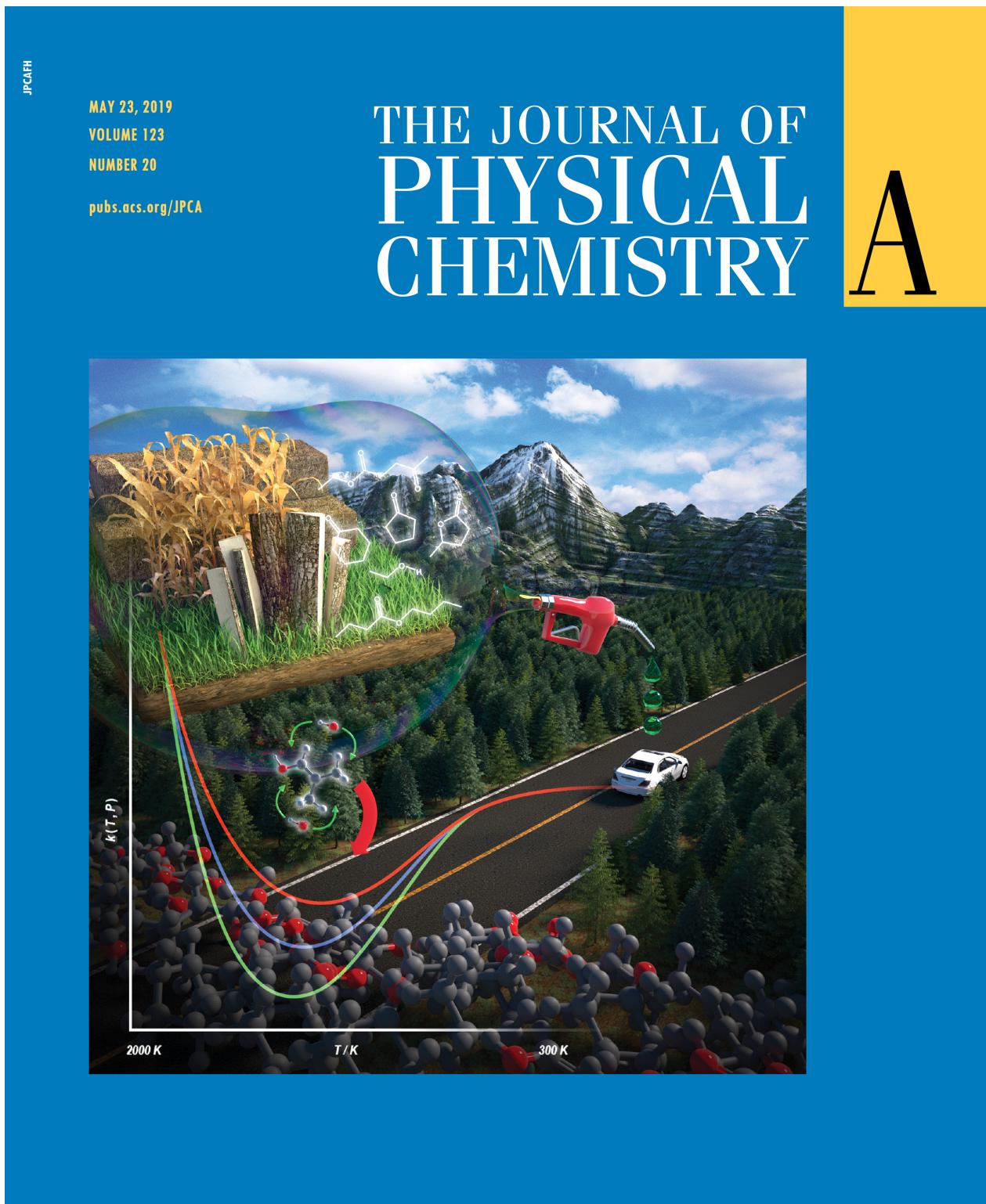
Wuxi, China

Sep 2014 - Jun 2015

Heat exchanger production process maintenance and optimization

## PROJECT HIGHLIGHTS

Our work, "OH + Cyclic-ketone", is highlighted in journal cover JPCA, 2019



ACS Publications  
Most Trusted. Most Cited. Most Read.

[www.acs.org](http://www.acs.org)