



Department of Mechanical Engineering  
Jordan University of Science & Technology  
P.O.Box 3030  
Irbid-Jordan  
E-mail: [alkam@just.edu.jo](mailto:alkam@just.edu.jo)  
Phone: +962 79 502 8871

## **Mohammad K. Alkam, Professor**

### **Education:**

- **Ph.D.** Mechanical Engineering [1995], The University of Iowa, Iowa City, IA, USA. Thesis Title: "*Ignition of Energetic Materials by Hot Gas Impingement*".
- **M.S.** Mechanical Engineering [1990], Jordan University of Science & Technology (JUST), Irbid, Jordan. Thesis Title: "*Transient Forced Convection in the Developing Region of a Concentric Annulus*".
- **B.S.** Mechanical Engineering [1987], Yarmouk University, Irbid, Jordan.

### **Research Interests:**

- Computational Heat Transfer
- Combustion

### **Teaching Interests:**

- Heat Transfer, Thermodynamics, and Fluid Mechanics,.
- Combustion, and Fuel Technology.
- Numerical Analysis, and Applied Mathematics.

### **Professional Experience:**

- **Professor [1996-present]**, Dept. of Mechanical Engineering, Jordan University of Science & Technology, Irbid, Jordan.

Taught several courses, including: Combustion Theory (graduate level), Fuel and Combustion (senior level), Classical Thermodynamics (junior level), and Applied Mathematics (junior level). Participated in several MS thesis-examining committees. Supervised several graduate and undergraduate research students. Participated in several administrative committees at the department of mechanical engineering/JUST. Participated in the development of the undergraduate and the graduate curricula at the department of mechanical engineering/JUST.

- **Visiting Professor [Aug. 2019 – May. 2020]**, Dept. of Mechanical Engineering, American University of Sharjah, Sharjah, UAE.  
One year assignment as a visiting professor at AUS during a sabbatical leave from JUST.
- **Visiting Associate Professor [Oct. – Dec. 2007]**, Dept. of Mechanical Engineering, The University of Iowa, Iowa City, IA, USA.  
Conducted research in simulation of pulsed detonation thermal spraying.
- **Visiting Associate Professor [July – Sept. 2006]**, Dept. of Mechanical Engineering, The University of Iowa, Iowa City, IA, USA.  
Oversaw the graduate work of a graduate student. Conducted research in numerical simulation of hydrogen fired auto airbag inflator.
- **Visiting Associate Professor [June – Sept. 2001]**, Dept. of Mechanical Engineering, The University of Iowa, Iowa City, IA, USA.  
Oversaw the graduate work of a graduate student. Conducted research in numerical simulation of a pyrotechnic airbag system.
- **Visiting Assistant Professor [June – Sept 1999]**, Dept. of Mechanical Engineering, The University of Iowa, Iowa City, IA, USA.  
Oversaw the graduate work of two graduate students. Also, conducted research in shock wave propagation in two-phase domains.

### **Journal Publications:**

1. **Alkam, M. K.**, and Alqam, M. [2015] “Prediction of the Service Life of a Reinforced Concrete Column under Chloride Environment,” *Advances in Materials Science and Engineering*, vol. 2015, Article ID 156298, 8 pages, 2015. doi:10.1155/2015/156298
2. Alqam M., and **Alkam, M. K.** [2014] “ Temperature and moisture distribution inside a circular concrete column during the early stages of hydration” *Canadian Journal of Civil Engineering*, 41(6) pp. 559-568
3. **Alkam, M. K.**, and Butler, P. B. [2012] “Thermal Behavior of a Flow in a Pulsed Detonation Thermal Spraying Device,” *Applied Mechanics and Materials*, 110-116, 3138.
4. **Alkam, M. K.**, Darwish, F. H., and Almuhtasib, A. A. [2010] “Thermal and Mass Transients in the Developing Region of a Homogeneous Tubular Chemical Reactor,” *AIChE Journal*, Vol. 56, No. 3, pp. 749-755 .
5. **Alkam, M. K.** and Al-Nimr, M. A. [2010] “Comments on the Article Titled ‘The Starting Flow in Ducts Filled with a Darcy-Brinkman Medium,’ *Transport in Porous Media*, Vol. 81, No. 2. Pp. 361.
6. **Alkam, M. K.**, and Butler, P. B. [2009] “Thermal Simulation of a Pyrotechnic Solid-Propellant Gas Generator,” *Jordan Journal of Mechanical and Industrial Engineering* Vol. 3, No. 3. pp. 198–205.

7. Cannon, J., **Alkam, M. K.**, and Butler, P. B. [2008] "Efficiency of Pulsed Detonation Thermal Spraying," *Journal of Thermal Spray Technology*, Vol. 17, No.4, pp. 456-464.
8. Aldoss, T. K., **Alkam, M. K.**, and Shatarah, M. [2004] "Natural Convection from a Horizontal Annulus Partially Filled with Porous Medium" *International Communications in Heat and Mass Transfer*, Vol 31, Number 3, pp. 441 – 452.
9. Haddad, O. M., **Alkam, M. K.**, and Khasawneh, M. T. [2004] "Entropy Generation Due to Laminar Forced Convection in the Entrance Region of a Concentric Annulus," *Energy the International Journal*, 29, 35-55.
10. Al-Nimr, M. A., and **Alkam, M. K.** [2003] " Overshooting Phenomena in the Hyperbolic Microscopic Heat Conduction Model," *Int. J. of Thermophysics*. Vol. 24, No. 2, pp 577-583.
11. **Alkam, M. K.**, Al-Nimr, M. A., and Hamdan, M. O. [2002] " On forced convection in channels partially filled with porous substrates, *Heat and Mass Transfer*. Vol. 38, pp 337-342
12. Al-Nimr, M. A., **Alkam, M. K.**, and Arpaci, V. [2002] "Heat Transfer Mechanisms During Short-pulse Laser Heating of Two-Layer Composite Thin Films," *Heat and Mass Transfer*, Vol. 38 Issue 7-8, pp 609-614.
13. **Alkam, M. K.**, Al-Nimr, M. A, and Hamdan, M. O. [2001] "Enhancing Heat Transfer in Parallel-Plate Channels by Using Porous Inserts," *Int, J. Heat Mass Transfer*, Vol. 44(5). pp. 931-938.
14. **Alkam, M. K.** and Al-Nimr, M. A. [2001] "Transient flow hydrodynamics in circular channels partially filled with a porous material," *Heat and Mass Transfer*, 37 (2-3):133-137.
15. **Alkam, M. K.**, and Butler, P. B. [2000] "Analysis of a Pulsed Detonation Thermal Spray Applicator" *Combustion Science and Technology*, 159: 17-37.
16. **Alkam, M. K.**, and Butler, P. B. [2000] "Impingement Heating and Ignition of Condensed-Phase Energetic Materials" *AIAA Journal of Propulsion and Power*, V 16 N 6 pp. 1075.
17. Masoud, S. A., Al-Nimr, M. A., and **Alkam, M. K.** [2000] "Transient Film Condensation on a Vertical Plate Imbedded in Porous Medium" *Transport in Porous Media*, Vol. 40, Issue 3, pp. 345-354.
18. Al-Nimr, M. A, and **Alkam, M. K.** [2000] "Basic Fluid Flow Problems in Porous Media." *Journal of Porous Media*, Vol. 3, Number 1.

19. Hamdan, M. O., Al-Nimr, M. A., and **Alkam, M. K.** [2000] "Enhancing forced convection by inserting porous substrate in the core of a parallel-plate channel, *Int. J. Numerical Methods for Heat and Fluid Flow*. Vol. 10(5), pp. 502-517 (2000).
20. **Alkam, M. K.**, and Al-Nimr, M. A. [1999] "Improving the Performance of Double-Pipe Heat Exchangers by Using Porous Substrates" *Int. J. Heat Mass Transfer*, Vol. 42, pp. 3609-3618.
21. Al-Nimr, M. A, and **Alkam, M. K.** [1999] "Magnetohydrodynamics Transient Free Convection in Open-Ended Vertical Annuli" *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 13, No. 2, pp. 256-265.
22. **Alkam, M. K.**, and Al-Nimr, M. A. [1999] "Solutions for Classical Fluid Flow Problems in Porous Domains" *The Japan Society of Mechanical Engineers, JSME, Series B*, Vol. 42, No. 2 (May issue).
23. **Alkam, M. K.**, and Al-Nimr, M. A. [1999] "Solar Collectors with Tubes Partially Filled with Porous Substrates." *J Solar Energy Engineering, ASME*, Vol. 121, No. 1, pp. 20.
24. **Alkam, M. K.**, and Al-Nimr, M. A. [1998] "Transient non-Darcian Forced Convection Flow in a Pipe Partially Filled with a Porous Material." *Int. J. Heat Mass Transfer*, Vol. 41, No. 2, pp. 347-456.
25. **Alkam, M. K.**, Al-Nimr, M. A., and Mousa, Z. N. [1998] "Transient Forced Convection of non-Newtonian Fluid in the Entrance Region of Porous Concentric Annuli." *Int. J. Numerical Methods for Heat & Fluid Flow*. Vol. 8, No. 6, pp.703.
26. Al-Nimr, M. A, and **Alkam, M. K.** [1998] "Unsteady Non-Darcian Fluid Flow in Parallel-Plates Channels Partially Filled with Porous Materials." *Heat and Mass Transfer*, 33, pp. 315-318.
27. Al-Nimr, M. A, and **Alkam, M. K.** [1997] "Unsteady Non-Darcian Forced Convection Analysis in an Annulus Partially Filled with a Porous Material." *J. Heat Transfer, ASME*, Vol. 119.
28. Al-Nimr, M. A, and **Alkam, M. K.** [1997] "A Generalized Thermal Boundary Condition." *Heat and Mass Transfer*, Vol. 33, pp. 157-161.
29. Al-Nimr, M. A, and **Alkam, M. K.** [1997] "Film Condensation on a Vertical Plate imbedded in a Porous Medium." *Applied Energy Journal*, Vol. 56, No. 1, pp. 47-57.
30. Al-Nimr, M. A, and **Alkam, M. K.** [1997] "A Modified Tubeless Solar Collector Partially Filled with Porous Substrate." *Renewable Energy*, Vol. 12, No. 2.

31. **Alkam, M. K.**, Pai, V. M., Butler, P. B., and Pitz, W. J. [1996] "Methanol and Hydrogen Oxidation Kinetics in Water at Supercritical States." *Combustion and Flame*, 106: 110-130.
32. **Alkam, M. K.**, and Butler, P.B. [1994] "Transient Conjugate Heat Transfer Between a Laminar Impinging Jet and a Solid Disk." *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 8, No. 4, pp. 664.
33. El-Shaarawi, M. A. A., and **Alkam, M. K.** [1992] "Transient Forced Convection in the Entrance Region of Concentric Annuli." *Int. J. Heat Mass Transfer*, Vol. 35, No. 12, pp. 3335.

**Personal Information:**

- Nationality: Jordanian
- Birth date: Aug. 2<sup>nd</sup> 1964