Curriculum vitae

Personal data

Name: Prof. Árpád B. Palotás

Office: University of Miskolc, Institute of Energy and Quality

Employments

University of Miskolc, HUNGARY
University of Utah, USA (senior research fellow)
Massachusetts Institute of Technology, USA (graduate student, post doctoral associate)

Scientific degree

PhD, Matwerials Science – University of Miskolc, 1997
MSc Chemical Engineer – MIT, 1995
MSc Metallurgical Engineer – University of Miskolc, 1991

Scientific activities

Currently Prof Palotas is the director of the Institute of Energy, as well as the head of the Department of Combustion Technology at the University of Miskolc. He also serves as the dean of the Faculty of Materials Science and Engineering. His research interest includes the quantification of high-resolution internal structure of soot particles using image analysis, biomass combustion, clean coal technologies, instrumentation development, as well as options to minimize the environmental impact of industrial combustion technology. His research team is involved in various projects related to renewable energy sources, e.g., solar hydrogen generation and they have also successfully converted old gasoline powered cars to fully functioning electric-only vehicles.

Professional experiences abroad

Pursued an M.S. in Chemical Engineering from the Massachusetts Institute of Technology, Cambridge, MA, USA (Characterization of soot structure using HRTEM image analysis, Thesis advisors: Profs. Adel F Sarofim and John B. VanderSande, 1995). After successfully defending his PhD at the University of Miskolc (Investigation of Soot Structure, Thesis advisor: Prof. Márton Voith, 1997), he spent years as postdoctoral associate and visiting scientist at the Massachusetts Institute of Technology and at the University of Utah where he continued his research on soot characterization as well as in the field of additives to reduce soot emission from aviation fuel sources.

Membership

- The Combustion Institute (Hungarian Section) – member
- Council for National Scientific Students' Association – member of the Board, Chairman of Engineering Sciences
- National Scientific Association of Energy Management – member
- Various committees and subcommittees of the Hungarian Academy of Sciences

Published reports

As co-authored over 200 publications that has received more than 350 independent citations.

The most relevant publications

- M. Lackner, Á. B. Palotás, F. Winter: Combustion: from Basics to Applications. John Wiley & Sons, September 2013, ISBN 978-3-527-33376-9, p. 350
- Á. B. Palotás; L. C. Rainey; A. F. Sarofim; J. B. Vander Sande: Soot Morphology: An Application of Image Analysis in High–Resolution Transmission Electron Microscopy - *Microscopy Research and Technique 33:266–278 (1996)*
- Á. B. Palotás; L. C. Rainey; A. F. Sarofim; J. B. Vander Sande; P. Ciambelli: Effect of Oxidation on the Microstructure of Carbon Blacks – *Energy & Fuels. 10:254–259 (1996)*
- Shaddix, C. R.; Palotás, Á. B.; Megaridis, C. M.; Choi M. Y.; Yang N. Y. C.: Soot graphitic order in laminar diffusion flames and a large-scale JP-8 pool fire – *Int. J. of Heat and Mass Transfer, Volume 48 (17), August 2005, pp. 3604-3614*
- Yan, S.; Eddings, E. G.; Palotás, Á. B.; Pugmire, R. J.; Sarofim A. F.: Prediction of Sooting Tendency for Hydrocarbon Liquids in Diffusion Flames – *Energy and Fuels, 19 (6), 2005, pp. 2408-2415*
- Szemmelveisz, K.; Szűcs, I.; Palotás, Á. B.; Winkler, L.; Eddings, E. G.: Examination of the combustion conditions of herbaceous biomass, *Fuel Processing Technology* 90 (2009), pp. 839-847

- Tóth, P.; Palotás, Á. B.; Lighty, J.; Echavarria C.A.: Quantitative differentiation of poorly ordered soot nanostructures: a semi-empirical approach, *Fuel 99, 2012, p. 1-6*
- P. Tóth; Á. B. Palotás; E. G. Eddings; R. T. Whitaker and J. S. Lighty: A novel framework for the quantitative analysis of high resolution transmission electron micrographs of soot I. - improved measurement of interlayer spacing. *Combustion and Flame*, 160 (5), 2013, pp. 909-919
- P. Tóth; Á. B. Palotás; E. G. Eddings; R. T. Whitaker and J. S. Lighty: A novel framework for the quantitative analysis of high resolution transmission electron micrographs of soot II. - robust multiscale nanostructure quantification. *Combustion and Flame*, 160 (5), 2013, pp. 920-932
- Z. Dobó, H. Kovács, P. Tóth, Á. B. Palotás: Investigation of natural gas theft by magnetic remanence mapping – *Forensic Science International* 245: pp. 1-6. (2014)
- Zs. Dobó, Á. B. Palotás: Impact of the voltage fluctuation of the power supply on the efficiency of alkaline water electrolysis. *International Journal of Hydrogen Energy*, 41 (28), pp. 11849-11856 (2016)
- Zs. Dobó, Á. B. Palotás: Impact of the current fluctuation on the efficiency of alkaline water electrolysis. *International Journal of Hydrogen Energy*, 42 (9), pp. 5649-5656 (2017)