



Professor Pega Hrnjak

Dr. Hrnjak is Stoecker Faculty Fellow, Distinguished Res. Professor and Director of the Air Conditioning and Refrigeration Center (ACRC) at the University of Illinois at Urbana Champaign. He is also a founder and president of 50 engineers strong Creative Thermal Solutions (CTS), a vibrant research company that bridges ACRC activities (pre-competitive research in the function of education) and industry. He is a fellow of SAE, ASME, ASHRAE, was on the board of Directors of IIAR, and is editor or member of the boards of several professional, scientific journals. He is the recipient of the IIR Gustav Lorentzen Medal (ICR

Prague 2011), L&B Holladay ASHRAE Distinguished Fellow Award for 2019, an annual award given to an ASHRAE Fellow for continuous preeminence in engineering or research work, J&E Hall (2012) and Rittinger (2008) medals, among other honors. He is an academician of AESS (AINS), in his native Serbia.

Pega joined the University of Illinois in 1993. His research focus is on energy conversion systems, microchannel heat exchanges, natural and synthetic refrigerants with applications: space, air, automotive, stationary, unitary, commercial, and industrial.

Pega got a formal education from the University of Belgrade, where he started an academic career from RA to Assist. Professor. He also worked at the Technical University of Denmark, University of Missouri Rolla, etc.

He published over 200 archival journal articles, 400 conference papers ($h=42$, more than 7000 citations), 100 reports, gave over 100 invited lectures, wrote several chapters in books, graduated over 100 Ph.D. and MS students.

Directions for development of vapor compression systems with CO₂, R290, and R717 in the next decade

The most important natural refrigerants for vapor compression cycles emerged: carbon dioxide, propane, and ammonia. The significant recent developments are summarized for each of them, followed by suggestions for specific technical approaches suited for essential applications. That is a consequence of the properties: thermophysical, flammability, toxicity. In conclusion, some general predictions are formulated.