

Ing. Karel Řezáč, Ph.D

born in 1980 in Kladno, Czech Republic

Education

- 1998 – 2004 M.Sc. (Ing.) at Faculty of Electrical Engineering, Czech Technical University in Prague
2004 – 2012 Ph.D. course in Plasma Physics at Faculty of Electrical Engineering, Czech Technical University in Prague

Work positions

- 2009 – up to now Assistant Professor: Faculty of Electrical Engineering, Czech Technical University in Prague (100%)
2011 – up to now Researcher, Institute of Plasma Physics, Academy of Sciences, Czech Republic (10%)

Work experience

- skills X-ray and neutron diagnostics of hot dense plasma, other experimental skills gained at the laser and Z-pinch facilities (PFZ-200 in FEE CTU in Prague, PALS Ac.Sci. in Prague, IPPLM in Warsaw, S-300 in KI in Moscow, GIT-12 in IHCE in Tomsk), numerical simulations (Monte Carlo, optimization techniques). Design of diagnostic instruments – Computer-Aided Design.
- 2005 – up to now Member of scientific group “High-current discharges” on FEE CTU in Prague (<http://www.fel.cvut.cz/en/research/teams/vyboje.html>)
- 2005 – up to now Participant of 31 experimental campaign in foreign countries (total 58 weeks):
16x (21 weeks) PF-1000 plasma focus, Institute of Plasma Physics and Laser Microfusion, Warsaw
3x (6 weeks) S-300 Z-pinch, Russian Research Center Kurchatov Institute, Moscow, RF
7x (19 weeks) GIT-12 pulsed power generator, Institute of High Current Electronics, Tomsk, RF
2x (4 weeks) Phelix laser & Unilac heavy ion accelerator, GSI Darmstadt, Germany
1x (2 weeks) Zebra pulsed power generator, NTF in UNR, Reno, USA
2x (4 weeks) HAWK pulsed power generator, NRL, Washington DC, USA
- 2007 – up to now Participant of 15 experimental campaign in Czech Republic on laser system PALS, IPP AS CR, Prague

Education skills

- 2005 – up to now Basic course of Physics on FEE CTU in Prague (bachelor and magister study program)
Astrophysics, optional course on CTU in Prague (bachelor and magister study program)
Plasma diagnostics on FEE CTU in Prague (Ph.D. study program) and on FNŠP CTU in Prague (magister study program)
Magnetic Z-pinch on FNŠP CTU in Prague (magister study program)
- 2010 – up to now Supervisor of 3 bachelor (2 finished) and 2 diploma (1 finished) thesis

Membership in scientific societies

- 2006 – up to now Member of American physical society (APS)

Organizational skills and competences

- 2012, 2014 Coordinator of diagnostic group on experiments in GSI, Darmstadt (Germany)
2018 Coordinator of diagnostic group on experiments in NRL, Washington DC, USA
2011 – up to now Preparation of experimental campaign on GIT-12 facility in Tomsku, (Russian Federation)

Technical skills and competences

- 2008 – up to now Professional qualification – license of Practices Using Ionizing Radiation Sources (State Office for Nuclear Safety of Czech Republic)
2008 – up to now Responsible person for Radiation protection (Laboratory with facility PFZ-200 in FEE CTU in Prague)

Awards

- Individual Award of the Rector of the Czech Technical University for excellent doctoral thesis "Reconstruction of Neutron Energy Spectra in Z-pinch Fusion Experiments" – 1st degree (2012)
- Team Award of the Rector of the Czech Technical University for Excellence in Research – 2nd degree (2014)

Publications (according to Web of Science)

up to June 2018 Number of all records: 79
Sum of the Times Cited: 506
Sum of Times Cited without self-citations: 227
H-index: 14

List of 10 significant papers

- [1] P. Kubes, J. Kravarik, D. Klir, K. Rezac, et al.: *Determination of Deuteron Energy Distribution From Neutron Diagnostics in a Plasma-Focus Device*. IEEE Trans. Plasma Sci., **37**(1):83–87, JAN 2009.
- [2] D. Klir, J. Kravarik, P. Kubes, K. Rezac, et al.: *Efficient production of 100 keV deuterons in deuterium gas puff Z-pinches at 2 MA current*. Plasma Phys. Control. Fusion, **52**(6), JUN 2010.
- [3] P. Kubes, M. Paduch, T. Pisarczyk, M. Scholz, D. Klir, J. Kravarik, K. Rezac, T. Chodukowski, I. Ivanova-Stanik, L. Karpinski, E. Zielinska, K. Tomaszewski, and M.J. Sadowski. *Transformation of the Pinched Column at a Period of the Neutron Production*. IEEE Trans. Plasma Sci., **38**(4):672–679, 2010.
- [4] D. Klir, P. Kubes, M. Paduch, T. Pisarczyk, T. Chodukowski, M. Scholz, Z. Kalinowska, E. Zielinska, B. Bienkowska, J. Hitschfel, S. Jednorog, L. Karpinski, J. Kortanek, J. Kravarik, K. Rezac, I. Ivanova-Stanik, and K. Tomaszewski. *Experimental evidence of thermonuclear neutrons in a modified plasma focus*. Appl. Phys. Lett., **98**(7), FEB 14 2011.
- [5] K. Rezac, D. Klir, P. Kubes and J. Kravarik: *Improvement of time-of-flight methods for reconstruction of neutron energy spectra from $D(d,n)^3\text{He}$ fusion reactions*. Plasma Phys. Control. Fusion **54** (2012), 105011.
- [6] D. Klir, P. Kubes, K. Rezac, J. Cikhardt, et al.: *Efficient Neutron Production from a Novel Configuration of Deuterium Gas-Puff Z-Pinch*, Phys. Rev. Lett. **112**, 095001, 3 March 2014.
- [7] D. Klír, J. Krása, J. Cikhardt, R. Dudzak, E. Krousky, M. Pfeifer, K. Řezáč, O. Šíla, et al.: *Efficient neutron production from sub-nanosecond laser pulse accelerating deuterons on target front side*, Physics of Plasmas 2015, **22**(9), art. no. 093117. ISSN 1070-664X.
- [8] D. Klír, A. Shishlov, V. Kokshenev, P. Kubeš, A. Labetsky, K. Řezáč, R. Cherzidov, J. Cikhardt, et al.: *Efficient generation of fast neutrons by magnetized deuterons in an optimized deuterium gas-puff z-pinch*, Plasma Physics and Controlled Fusion. 2015, **57**(4), art. no. 044005. ISSN 0741-3335. Highlights of 2015, Cover image, LabTalk.
- [9] D. Klír, A. Shishlov, V. Kokshenev, P. Kubeš, A. Labetsky, et al.: *Deuterium z-pinch as a powerful source of multi-MeV ions and neutrons for advanced applications*, Physics of Plasmas 2016, vol. **23**, no. 3, art. no. 0327025. Editor's Picks, Physics of Plasmas 2016. Most Read in March 2016.
- [10] D. Klír, A. Shishlov, V. Kokshenev, P. Kubeš, K. Řezáč, J. Kravárik, V. Munzar, J. Cikhardt, B. Cikhardtová, et al.: *Ion acceleration mechanism in mega-ampere gas-puff z-pinches*, New Journal of Physics 2018, vol. **20**, no. 5, art. no. 053064.