



Prof. Ing. Irena Kratochvílová, Ph.D.

married, 2 children

Citizenship Czech Republic

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Education and Qualifications

1993–1998 **Ph.D.**, Faculty of Nuclear Physics, Czech Technical University, Prague, thesis: “**Material Changes After Proton Implantation into Dielectric Crystals**”

2006 **Habilitation**, Faculty of Nuclear Physics, Czech Technical University in Prague, CR, habilitation lecture “**Molecular Nanosystems**”,

From 2022 **Professor**, Faculty of Nuclear Physics, Czech Technical University, Prague

Professional Career

From 1997 academic researcher – Group of Functional Materials, Institute of Physics, AS CR, Na Slovance 2, Prague 8, 182 21, Czech Republic

2000–2002 post-doc position, Molecular electronic laboratory, Penn State University, U.S.A.

2002–2006 interrupted for maternity leave

From 2014 boss of Physical Properties of Biomaterials group, Institute of Physics, AS CR

From 2016 boss of SAFMAT/NanoESCA laboratory Institute of Physics, AS CR

Research activities in last 7 years: nanodiamond layers against corrosion in nuclear reactors, materials for energy storage, nanodiamonds for cell sensors, molecular electronics, nanoliposomes for vaccination constructs

Experimental skills: IR spectroscopy, Raman spectroscopy, AFM/STM, photolithography, luminescence, conductivity measurements, plasma-enhanced linear antenna microwave chemical vapor deposition, materials for cell cryopreservation, medical data processing

Editor Royal Society of Chemistry, Scientific Reports, Nature

Teaching Activities

From 1997 – lectures for the MSc./PhD. students of the Faculty of the Nuclear Physics, Czech Technical University, Solid State Physics, Molecular Nanosystems, Nanomaterials

2 books for MSc. students of the Faculty of the Nuclear Physics

Thesis supervising: Master theses defended 4, PhD thesis defended 4

Patents: EP3139951B1: Polyepitope recombinant vaccines for protection against Lyme borreliosis in human and veterinary medicine, EP3047046: Layer protecting the surface of zirconium alloys used in nuclear reactors, Nuclear reactor having a layer protecting the surface of zirconium alloys, US 20190080806 A1

Grant projects responsible person: 16 Czech projects, 2 international projects

Awards: 2014 American Chamber of Commerce's Foreign Investment Award for the development of a recombinant vaccine against *Borrelia* infection,

2015 Award of the Technological Agency of the Czech Republic

Paper V. Petrakova et al. *Adv. Funct. Mater.* **22** (2012) 812 - 819 selected to Excellent Publications by Czech Council for Research, Development and Innovation.

Number of papers (WOS): 75, 5 chapters in books, 1470 citations, h-index 22