



15th International Workshop on Slow Positron Beam Techniques and Applications

Third circular

Web page: <https://physics.mff.cuni.cz/kfnt/slopos/>

Main topics

- positron and positronium beams and related technologies
- pulsed beams and positron traps
- thin films and layered structures
- nano structures
- porous materials
- defect profiling in bulk and layered structures
- surfaces and interfaces
- positronium formation and emission
- positron interaction with atoms and molecules
- many positrons and anti-hydrogen
- theoretical calculations of positron parameters
- digital processing of positron annihilation data
- improvement of experimental techniques

Important dates

- SLOPOS-15 conference: **September 2 – 6, 2019**
- deadline for paper submission for publication in proceedings (Acta Physica Polonica A): **September 20, 2019**

Presentations

The workshop will consist of oral contributions (plenary, invited and regular) in 16 sessions and a poster session.

A computer with Microsoft Power Point and Adobe Acrobat reader will be available for presentations.

Time slots allocated for oral presentations:

- Plenary lecture: 40 min (35 min talks + 5 min for discussion)
- Invited talk: 30 min (25 min talks + 5 min for discussion)
- Regular talk: 20 min (15 min talks + 5 min for discussion)

All speakers are kindly asked to keep the speaking time.

Poster session will be held on Tuesday September 3, 2019 from 6 p.m. to 8 p.m.

Maximum Poster dimensions: width: 117 cm, height: 147 cm
(recommended poster size is A0 oriented in the portrait style)

The Best Poster Award will be assigned based on voting of participants during the poster session.

Registration fee

participant	early bird till 31.5. 2019	standard rate till 31.7. 2019	on site payment 2.9. 2019 at registration
Regular	550 EUR	650 EUR	750 EUR
Student	450 EUR	550 EUR	650 EUR
Commercial	850 EUR	950 EUR	1050 EUR
Accompanying person	350 EUR	450 EUR	550 EUR

Registration fee includes

- admission to all sessions
- printed book of abstracts
- proceedings (electronic version and hardcopy)
- lunches & coffee breaks
- welcome reception on September 2, 2019
- excursions on September 3, 4 and 6, 2019
- conference dinner on September 5, 2019

On site payment of registration fee is possible in cash only (EUR, CZK) at the registration desk on September 2, 2019

Conference venue

SLOPOS-15 will be held in the historical building of the Faculty of Mathematics and Physics, Charles University located in the centre of Prague at the Lesser Town square. The address of the building is

Malostranske namesti (Lesser Town Square) 2/25, 118 00 Praha 1, Czech Republic

GPS location: 50.0883461965, 14.4032037711

The lecture and registration desk are located in the first floor of the building

Proceedings

The conference proceedings of SLOPOS-15 will be published in a special volume of **Acta Physica Polonica A** (impact factor IF = 0.86). The content of proceedings will be available in full text online on the Acta Physica Polonica A site <http://info.ifpan.edu.pl/APP/>. Printed proceedings will be sent to every participant of SLOPOS-15. Only contributions presented at SLOPOS-15 can be included in the proceedings. Each participant can submit one paper to the proceedings.

The instructions for manuscript preparation can be downloaded from the publisher's website (Guide to authors <http://www.ifpan.edu.pl/APP/guide.pdf>).

The length of contribution to SLOPOS-15 proceedings is limited to **4 printed pages**. This page limitation holds for all contributions. The deadline for submission of manuscripts is **September 20, 2019**. 4 printed pages correspond approximately to 24000 characters including figures and tables. One squared figure in the paper (placed in one of two column of the text), including a short caption, is equivalent to 1100 characters. The title, authors list with three different affiliations is equivalent to about 250 characters, long abstract and a line with PACS numbers are equivalent to about 3200 characters.

Manuscripts prepared according to the Guide of authors should be submitted as a single **pdf file** containing all textual material, figures, tables etc. embedded in text, suitable for reviewing process to the e-mail address slopos-15@mff.cuni.cz. Name of the pdf file containing manuscript should be ID_participant_name.pdf, where ID is the SLOPOS-15 ID number received at registration. Filled and signed copyright transfer form is required with the manuscript. The copyright transfer form can be downloaded at the web address http://www.ifpan.edu.pl/APP/copyright_transfer_form.doc. Submission of a manuscript indicates a tacit understanding that the paper is not actively under consideration for publication elsewhere; that its publication has been approved by all co-authors; that the manuscript accepted for publication will not be published elsewhere. When the paper is accepted the author will be asked to submit also MS Word or LaTeX source files. It is recommended to use MS Word or LaTeX templates available on the SLOPOS-15 web page

<https://physics.mff.cuni.cz/kfnt/slopos/index.php?page=proceedings>

If you have any query regarding proceedings please do not hesitate to contact editors of SLOPOS-15 proceedings Jakub Čížek (jakub.cizek@mff.cuni.cz) and Ivan Procházka (ivan.prochazka@mff.cuni.cz).

Scientific program

for on-line version see <https://physics.mff.cuni.cz/kfnt/slopos/?page=program>

Monday September 2, 2019	
7:00-8:00	Registration
7:00-8:00	Coffee & breakfast
Opening	
8:00-8:10	Opening of SLOPOS-15 Ladislav Skrbek <i>Vice-dean of the Faculty of Mathematics and Physics, Charles University, Czech Rep.</i>
8:10-8:20	Organization remarks
Session I: Positron surface science. Chair: Andreas Wagner	
8:20-9:00	Plenary lecture 1 Alex Weiss <i>The University of Texas at Arlington, USA</i> Novel Positron Annihilation Based Surface Spectroscopies
9:00-9:30	Invited talk 1 Izumi Mochizuki <i>Institute of Materials Structure Science, KEK, Japan</i> Recent studies of Surface Structure Analysis with Total-Reflection High-Energy Positron Diffraction (TRHEPD) at Slow-Positron Facility, KEK
9:30-10:00	Invited talk 2 Ken Wada <i>National Institutes for Quantum and Radiological Science and Technology, Japan</i> A low-energy positron diffraction (LEPD) experiment station for a linac-based slow-positron beam
10:00-10:30	Invited talk 3 Kenji Ito <i>National Institute of Advanced Industrial Science and Technology (AIST), Japan</i> Na-22 based low-energy AMOC measurements for chemical analysis of the free-volume holes in hydrocarbon-silica hybrid thin films
10:30-11:00	Coffee break
Session II: Ps physics and Ps beams. Chair: Yasuyuki Nagashima	
11:00-11:40	Plenary lecture 2 David Cassidy <i>University College London, UK</i> Recent experimental progress in positronium-laser physics
11:40-12:10	Invited talk 4 Sebastiano Mariazzi <i>University of Trento, Italy</i> Techniques for production and detection of a 2^3S positronium beam
12:10-12:30	Talk 1 Ross Sheldon <i>University College London, UK</i> A Multi-ring Electrostatic Guide for Rydberg Positronium
12:30-12:50	Talk 2 Lokesh Gurung <i>University College London, UK</i> Precision microwave spectroscopy of the $n=2$ positronium fine structure
12:50-13:00	Conference photo
13:00-14:00	Lunch, restaurant Profesní dům (base floor of the conference venue)

Session III: Ps physics and Ps beams. Chair: Radek Zaleski	
14:00-14:20	Talk 3 Akira Ishida <i>The University of Tokyo, Japan</i> Recent progress towards positronium Bose-Einstein condensation
14:20-14:40	Talk 4 Nikodem Krawczyk <i>Jagiellonian University, Krakow, Poland</i> Studies of quantum entanglement in positronium decay with the J-PET detector
14:40-15:00	Talk 5 Juhi Raj <i>Jagiellonian University, Krakow, Poland</i> Search for T-violation in Positronium decay using the J-PET detector
15:00-15:20	Talk 6 Aleksander Gajos <i>Jagiellonian University, Krakow, Poland</i> Studies of ortho-positronium decays into three photons with the J-PET detector
15:20-15:40	Talk 7 Jyoti Chhokar <i>Jagiellonian University, Krakow, Poland</i> Charge symmetry test in decays of positronium atoms using the J-PET detector
15:40-16:00	Talk 8 Sushil Sharma <i>Jagiellonian University, Krakow, Poland</i> TOT method for the disentanglement of photons in Positron Annihilation Lifetime Spectroscopy
16:00-16:30	Coffee break
Session IV: Ps in solid & liquids. Chair: Kenji Ito	
16:30-17:00	Invited talk 5 Roberto Sennen Brusa <i>University of Trento, Italy</i> Open volumes structure and molecular transport in polymer and biopolymer nanocomposites
17:00-17:30	Invited talk 6 Ruggero Caravita <i>AEgIS collaboration, CERN, Switzerland</i> Long-lived Positronium for pulsed antihydrogen production
17:30-17:50	Talk 9 Tetsuya Hirade <i>Japan Atomic Energy Agency, Tokai, Japan</i> ortho-Positronium annihilation in Room Temperature Ionic Liquids
17:50-18:10	Talk 10 Bozena Zgardzinska <i>Maria Curie-Skłodowska University, Lublin, Poland</i> INTI plot - a new standard for the presentation of PALS results
18:30-22:00	Welcome reception & excursion to rotunda

Tuesday September 3, 2019	
Session V: Positron traps & scattering. Chair: Alex Weiss	
8:00-8:40	Plenary lecture 3 Clifford Surko <i>University of California San Diego, USA</i> New Physics with Positron Traps and Trap-Based Beams
8:40-9:10	Invited talk 7 Akira Uedono <i>University of Tsukuba, Japan</i> Annealing behaviours of open spaces in thin Al ₂ O ₃ films deposited on semiconductors studied using monoenergetic positron beams
9:10-9:30	Talk 11 Luca Chiari <i>Chiba University, Japan</i> A novel high-brightness and energy-tunable positronium beam and future applications
9:30-9:50	Talk 12 Gleb Gribakin <i>Queen's University Belfast, UK</i> Positron binding, scattering, and annihilation on atoms and molecules
9:50-10:10	Talk 13 Francesco Guatieri <i>Forschungs-Neutronenquelle, Heinz Maier-Leibnitz (FRM II), Garching, Germany</i> Simulating positron to positronium conversion in nanostructured materials
10:10-10:30	Talk 14 Samuel Niang <i>CEA, University Paris-Saclay, France</i> Accumulation of positrons from a linac based source
10:30-11:00	Coffee break
Session VI: Antimatter & high energy physics. Chair: Roberto Sennen Brusa	
11:00-11:30	Invited talk 8 Laszlo Liskay <i>CEA, IRFU, University Paris-Saclay, France</i> The new positron beam line of the GBAR experiment at CERN
11:30-12:00	Invited talk 9 Rafael Ferragut <i>Politecnico di Milano, Italy</i> Antimatter wave interferometry. First observation
12:00-12:20	Talk 15 Bongho Kim <i>The Research institute of Basic Science, Seoul National University, Korea</i> Development of a PbWO ₄ detector for single-shot positron annihilation lifetime spectroscopy at the GBAR experiment
12:20-12:40	Talk 16 Jing Jiang <i>National University of Defense Technology, Changsha, China</i> The Generation of Ultra-relativistic Positron by Gas-Solid Target Based on Ultra-intense Laser
12:40-13:00	Talk 17 Yanyun Ma <i>National University of Defense Technology, Changsha, China</i> Generation of quasi-monoenergetic high energy positrons based on laser wakefield accelerated electrons

13:00-14:00	<i>Lunch, restaurant Profesní dům (base floor of the conference venue)</i>
Session VII: Positron physics & theory. Chair: Akira Uedono	
14:00-14:30	Invited talk 10 Eve Stenson <i>Max-Planck-Institute for Plasma Physics, Greifswald & Garching, Germany</i> Positron-induced luminescence
14:30-15:00	Invited talk 11 Jan Kuriplach <i>Charles University, Prague, Czech Republic</i> HfNbTaTiZr complex concentrated alloys, their microstructure and positron characteristics
15:00-15:20	Talk 18 Masanori Tachikawa <i>Yokohama City University, Japan</i> Ab initio study of the effect of molecular vibrations on the positron-binding to polyatomic molecules
15:20-15:40	Talk 19 Shoji Ishibashi <i>National Institute of Advanced Industrial Science and Technology (AIST), Japan</i> Calculation of positron states and annihilation parameters in gamma and amorphous Al ₂ O ₃
15:40-16:00	Talk 20 Cara Doherty <i>CSIRO Manufacturing, Australia</i> Porous Metal-Organic Framework Glasses
16:00-16:30	<i>Coffee break</i>
Session VIII: Development of positron beams & techniques. Chair: Torsten Staab	
16:30-17:00	Invited talk 12 Koji Michishio <i>National Institute of Advanced Industrial Science and Technology (AIST), Japan</i> Current status of the AIST slow positron facility
17:00-17:20	Talk 21 Lukasz Kaplon <i>Jagiellonian University, Krakow, Poland</i> Development of Fast Plastic Scintillators for Positron Annihilation Lifetime Spectroscopy
17:20-17:40	Talk 22 Jerzy Dryzek <i>Institute of Nuclear Physics PAN institute, Krakow, Poland</i> On the reconstruction of defect depth profiles obtained from the positron annihilation experiment and chemical etching
17:40-18:00	Talk 23 Valerio Toso <i>Politecnico di Milano, Italy</i> Sensitivity of nuclear emulsions to low-energy positrons
18:00-20:00	Poster session
20:00-22:00	<i>Evening excursion to Prague's castle</i>

Wednesday September 4, 2019	
Session IX: Development of positron beams & techniques. Chair: Reinhard Krause-Rehberg	
8:00-8:40	Plenary lecture 4 Christoph Hugenschmidt <i>FRM II and Physics Department E21 Technische Universität München, Germany</i> Determination of the Vacancy Formation Enthalpy Revisited by Temperature Dependent Doppler-Broadening Spectroscopy
8:40-9:10	Invited talk 13 Werner Egger <i>Universität der Bundeswehr München, Germany</i> The pulsed low energy positron system PLEPS: applications and new developments
9:10-9:30	Talk 24 Matthias Dodenhöft <i>Heinz Maier-Leibnitz Center (MLZ), Technische Universität München (TUM), Germany</i> Total Reflection High-Energy Positron Diffractometer at NEPOMUC
9:30-9:50	Talk 25 Marcel Dickmann <i>Universität der Bundeswehr München, Germany</i> Upgrade of the NEPOMUC re-moderator
9:50-10:10	Talk 26 Eric Hirschmann <i>Helmholtz Zentrum Dresden-Rossendorf, Germany</i> Digital positron annihilation lifetime spectroscopy for high count rates
10:10-10:30	Talk 27 Laurent Weber <i>Teledyne Signal Processing Devices, Sweden</i> Optimized High-speed digitizers for slow positron applications
10:30-11:00	<i>Coffee break</i>
Session X: Development of positron beams & techniques. Chair: Christoph Hugenschmidt	
11:00-11:30	Invited talk 14 Maik Butterling <i>Helmholtz Zentrum Dresden-Rossendorf, Germany</i> Status of the Positron Sources at the Superconducting Electron LINAC ELBE
11:30-12:00	Invited talk 15 Eric Voutier <i>CNRS/IN2P3/IPNO Université Paris Sud & Paris Saclay, France</i> Polarized positron beam developments
12:00-12:20	Talk 28 Andreas Wagner <i>Helmholtz Zentrum Dresden-Rossendorf, Germany</i> Do we need a mono-energetic spin-polarized positron beam?
12:20-12:40	Talk 29 Yingjie Wang <i>Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China</i> Positron burst detecting array system based on SiPM and DRS4
12:40-13:00	Talk 30 Sharon May-Tal Beck <i>NRCN, Beer-Sheva, Israel</i> The new operational Slow POsitrOn faciLiTy in Israel: SPOT-IL
13:30-18:30	<i>Excursion to Kutná Hora (st. Barbora Cathedral, Ossuary Sedlec, Cathedral of Assumption of Our lady and st. John the Baptist) Lunch pack provided</i>
18:30-20:30	<i>Dinner in restaurant Dačický, Kutná hora</i>

Thursday September 5, 2019**Session XI: Defects in oxides & semiconductors. Chair: Jan Kuriplach**

8:00-8:30	<p>Invited talk 16</p> <p>Stephan Eijt <i>TU Delft, The Netherlands</i></p> <p>The role of vacancies and hydrogen in the photochromism of YO_xH_y thin films examined by in-situ Positron Annihilation Spectroscopy and μSR</p>
8:30-9:00	<p>Invited talk 17</p> <p>David Keeble <i>University of Dundee, UK</i></p> <p>Variable energy positron annihilation lifetime spectroscopy studies of perovskite oxide electronic materials</p>
9:00-9:30	<p>Invited talk 18</p> <p>Kelvin Lynn <i>Washington State University, USA</i></p> <p>Positron Annihilation studies of in Various doped $\beta\text{-Ga}_2\text{O}_3$ Single Crystals with a Variable Energy Positron Beam</p>
9:30-9:50	<p>Talk 31</p> <p>Shigeru Yoshimoto <i>Toray Research Center, Inc., Japan</i></p> <p>Depth-resolved porosity of subnanoporous silica films elucidated by the low-energy positron lifetime technique and in-situ FT-IR-ATR</p>
9:50-10:10	<p>Talk 32</p> <p>Jonatan Slotte <i>Aalto University, Finland</i></p> <p>Compensating defects in epitaxial Ge and $\text{Ge}_x\text{Sn}_{1-x}$</p>
10:10-10:30	<p>Talk 33</p> <p>Nikolay Arutyunov <i>IPLT-Institute of Electronics Tashkent, Uzbekistan</i></p> <p>Positron annihilation in polyelectron system of strong spin-orbit field induced by bismuth impurity centers in natural silicon</p>
10:30-11:00	Coffee break
Session XII: Defects in thin films. Chair: Stephan Eijt	
11:00-11:30	<p>Invited talk 19</p> <p>Maciej Oscar Liedke <i>Helmholtz Zentrum Dresden-Rossendorf, Germany</i></p> <p>Electrical field-controlled ON-OFF ferromagnetism in metal oxide films</p>
11:30-11:50	<p>Talk 34</p> <p>Ahmed G. Attallah <i>Helmholtz-Zentrum Dresden-Rossendorf, Germany</i></p> <p>Different curing strategies to create closed pores in ultra-low-k thin films</p>
11:50-12:10	<p>Talk 35</p> <p>Jacques Botsoa <i>CNRS, CEMHTI Université d'Orléans, France</i></p> <p>The origin of the p-type conductivity in thin films of copper chromium delafossites deposited by Metal-Organic Chemical Vapor deposition investigated by Positron Annihilation Spectroscopy</p>
12:10-12:30	<p>Talk 36</p> <p>Petr Hruška <i>Charles University, Prague, Czech Republic</i></p> <p>Slow positron annihilation studies of black and reflective Al films prepared by magnetron sputtering</p>
12:30-12:50	<p>Talk 37</p> <p>Afrina Khanam <i>Aalto University, Finland</i></p> <p>Manifestation of Vacancy-As complexes in As doped GeSn epilayers</p>
13:00-14:00	Lunch, restaurant Profesní dům (base floor of the conference venue)

Session XIII: Defects in metals. Chair: Masanori Fujinami	
14:00-14:30	Invited talk 20 Mohamed Elsayed <i>Martin-Luther University Halle, Germany</i> The influence of trace elements on formation of quenched-in vacancies in Al-alloys
14:30-14:50	Talk 38 Laura Resch <i>Institute of Materials Physics, Graz University of Technology, Austria</i> Artificial Aging of a Commercial Light Weight Alloy Studied by In-situ Positron Beam Doppler Broadening Spectroscopy
14:50-15:10	Talk 39 Alaaeldin Ibrahim <i>Martin-Luther University Halle, Germany</i> Effect of trace elements and quenched-in vacancies on precipitation hardening in Al-1.7at%Cu alloy
15:10-15:30	Talk 40 Pierre Desgardin <i>CNRS, University Orléans, France</i> Vacancies-solutes interactions and their role in the formation of oxide nanoparticles in ODS steels
15:30-16:00	Voting next SLOPOS
16:00-16:30	<i>Coffee break</i>
Session XIV: Defects in various solids. Chair: Ivan Prochazka	
16:30-17:00	Invited talk 21 Filip Tuomisto <i>Aalto University, Finland</i> Doppler broadening experiments (and calculations) in β -Ga ₂ O ₃ : vacancy defects, signal anisotropy, or both?
17:00-17:20	Talk 41 Jagoda Urban-Klaehn <i>Idaho National Laboratory, USA</i> Positron Parameters for Atypical Samples (Rocks & Powdered Catalysts)
17:20-17:50	Talk 42 Taras Kavetsky <i>Drohobych Ivan Franko State Pedagogical University, Ukraine</i> Controlling the network properties of polymer matrixes for improvement of amperometric enzyme biosensors: Contribution of positron annihilation
17:50-18:10	Talk 43 Ewelina Kubicz <i>Jagiellonian University, Krakow, Poland</i> Studies of alive normal and cancer cell lines and tissues in vitro with Positron Annihilation Lifetime Spectroscopy.
19:00-23:00	<i>Banquet at the Assembly hall of the Lesser Town Palace</i>

Friday September 6, 2019	
Session XV: Ps interaction with solids & ion implantation. Chair: Vladimír Slugeň	
8:00-8:40	Plenary lecture 5 Yasuyuki Nagashima <i>Tokyo University of Science, Japan</i> Progress in the study of energy tunable Ps beams employing Ps ⁻ photodetachment technique
8:40-9:10	Invited talk 22 Atsuo Kawasuso <i>National Institutes for Quantum and Radiological Science and Technology, Japan</i> Positronium Formation at Metal, Semiconductor and Graphene Surfaces
9:10-9:40	Invited talk 23 Marie-France Barthe <i>CEMHTI CNRS, Université d'Orléans, France</i> Damage induced by irradiation in W and Deuterium trapping in vacancy defects probed by slow positrons
9:40-10:10	Invited talk 24 Catherine Corbel <i>CEA, France</i> Effect of Defect Production on Photoluminescence & Positron Trapping in He ion Implanted Methylammonium Lead Tri-Iodide Perovskite Layers
10:10-10:30	Talk 44 Xingzhong Cao <i>Institute of High Energy Physics, Beijing, China</i> Effect of rhenium on microscopic defects induced by He-ions irradiation in tungsten-based alloys
10:30-11:00	<i>Coffee break</i>
Session XVI: Radiation damage & Ion implantation. Chair: Marie-France Barthe	
11:00-11:20	Talk 45 Vladimír Slugeň <i>Institute of Nuclear and Physical Engineering, Slovak University of Technology</i> Positron annihilation studies of reactor pressure vessel steels treated by irradiation and hydrogen ion implantation
11:20-11:40	Talk 46 Eryang Lu <i>Aalto University, Finland</i> Effect of carbon on the evolution of early stage radiation defects in equi-atomic CoCrFeMnNi high-entropy alloys
11:40-12:00	Talk 47 Peter Simpson <i>Western University, Canada</i> In situ ion implanter to study vacancy-impurity interactions
12:00-12:20	Talk 48 Krzysztof Siemek <i>Joint Institute for Nuclear Research, Dubna, Russia</i> Defect and ion distribution studies in ion-implanted silicon
12:20-12:40	Talk 49 Anna Macková <i>Nuclear Physics Institute of the Czech Academy of Sciences</i> Ion beam modification of crystalline materials for optoelectronic application
13:00-14:00	<i>Lunch, restaurant Profesní dům (base floor of the conference venue)</i>
Closing	
14:00-14:20	Summary of SLOPOS-15
14:20-14:30	Closing remarks
15:00-20:00	Excursion to laboratories in Řež (Tandetron, cyclotron) and in Troja (positron annihilation spectroscopy)

Poster session (Tuesday, September 3, 2019, 18:00 – 20:00)	
P-1	Oksana Melikhova , <i>Charles University, Prague, Czech Republic</i> : Microstructure and nanoscopic porosity in black Pd films.
P-2	Jan Kuriplach , <i>Charles University, Prague, Czech Republic</i> : Positron annihilation at grain boundaries in lithiated and delithiated Li_xFePO_4 battery material.
P-3	Baoyi Wang , <i>Institution of High Energy Physics and University of Chinese Academy of Sciences, Beijing, China</i> : Measurement of annihilation lifetime for positron burst.
P-4	Veronika Kodetová , <i>Charles University, Prague, Czech Republic</i> : Early stages of precipitation in mold-cast, cold-rolled and heat treated aluminium alloy AA7075 with Sc, Zr-addition.
P-5	Jagoda M. Urban-Klaehn , <i>Idaho National Laboratory, USA</i> : Positron Annihilation Analysis for Zeolites/Silica Gel used in Catalysis.
P-6	Roman Laptev , <i>National Research Tomsk Polytechnic University, Tomsk, Russia</i> : Positron Spectroscopy of Defect Structure of Electron Beam Melted Titanium Ti-6Al-4V Alloy.
P-7	Andrey Lider , <i>National Research Tomsk Polytechnic University, Tomsk, Russia</i> : Positron spectroscopy of nanoscale metallic Zr/Nb multilayers after Helium irradiation.
P-8	Eric Hirschmann , <i>Helmholtz-Zentrum Dresden-Rossendorf, Germany</i> : Results of a supranational Round Robin Test to initiate an international standard for source-based PALS measurement.
P-9	Donovan M. Newson , <i>University College London, UK</i> : Absolute Differential Positronium-Formation Cross Sections From The Inert Atoms.
P-10	Kamil Dulski , <i>Jagiellonian University, Krakow, Poland</i> : PALS Avalanche – a new PAL spectra analysis software.
P-11	Masanori Fujinami , <i>Chiba University, Japan</i> : The crucial defects induced in iron and stainless steel upon hydrogen embrittlement by positron annihilation spectroscopy.
P-12	Masaki Maekawa , <i>National Institutes for Quantum and Radiological Science and Technology, Takasaki, Japan</i> : Construction of a spin-polarized positronium time-of-flight measurement apparatus.
P-13	Atsushi Kinomura , <i>Kyoto University, Japan</i> : Improvement of positron lifetime measurement systems for the KUR slow positron beamline.
P-14	Kento Sugita , <i>Osaka Prefecture University, Japan</i> : Positron annihilation in bulk materials by using 17 MeV gamma beam induced positron beam.
P-15	Kamil Fedus , <i>Nicolaus Copernicus University, Torun, Poland</i> : Binary-encounter-dipole model for positron impact direct ionization.
P-16	Joris More-Chevalier , <i>Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic</i> : Oxidation of ScN films and effects on these properties.
P-17	Jerzy Dryzek , <i>Institute of Nuclear Physics PAN, Kraków, Poland</i> : Remarks on R-parameter extracted from DB spectrum related to three-photon annihilation.
P-18	Yoshi Kobayashi , <i>Waseda University, Tokyo, Japan</i> : Para-positronium in polymers and silica glass.
P-19	Radek Zaleski , <i>Maria Curie-Skłodowska University, Lublin, Poland</i> : Controlled drug release monitored by PALS.
P-20	Atsushi Yabuuchi , <i>Kyoto University, Japan</i> : Estimation of the effect of positron production amount by installing Cd-cap in the KUR slow positron beam line.

P-21	Shivani Shivani , <i>Jagiellonian University, Krakow, Poland</i> : Development of the J-PEM for breast cancer detection and diagnosis using positronium imaging.
P-22	Markus Singer , <i>Technische Universität München, Garching, Germany</i> : Progress towards a magnetically confined electron-positron pair plasma.
P-23	Martin Petriska , <i>Slovak University of Technology, Bratislava, Slovakia</i> : Measuring long lifetimes with DRS4 and QtPALS.
P-24	Michal Novotný , <i>Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic</i> : Investigation of Optical Properties and Defect Structure of Rare Earth (Sm, Gd, Ho) Doped Zinc Oxide Thin Films Prepared by Pulsed Laser Deposition.
P-25	Danny Petschke , <i>Julius-Maximilians University Würzburg, Germany</i> : A supervised Machine Learning Approach for Shape sensitive Detector Pulse Discrimination in Positron Spectroscopy Applications.
P-26	Kazuyuki Tanaka , <i>Tottori University, Tottori, Japan</i> : Data-scientific software for the surface structure analysis by total-reflection high-energy positron diffraction (TRHEPD).
P-27	Torsten E.M. Staab , <i>Julius-Maximilians University Würzburg, Germany</i> : Limitations on the Lifetime Spectra Decomposability applying the Iterative Least-Square Reconvolution Method with the Instrument Response functions (in)directly obtained from 207-Bi and 60-Co.
P-28	Marek Pietrow , <i>Maria Curie-Skłodowska University, Lublin, Poland</i> : Experimental study of light emission during positronium formation in matter exposed to slow positron beam.
P-29	Johannes Mitteneder , <i>Universität der Bundeswehr München, Neubiberg, Deutschland</i> : Frequency stabilisation of high power RF resonators for pulsed positron beams.
P-30	Toshio Hyodo , <i>KEK, Tsukuba, Japan</i> : Present Status of the Slow Positron Facility of Institute of Materials Structure Science, KEK.
P-31	Ricardo Helm , <i>Universität der Bundeswehr München, Neubiberg, Germany</i> : Improved defects spectroscopy by in situ light illumination and electric field variation at PLEPS.
P-32	Kristoffer Simula , <i>Aalto University, Finland</i> : Positron Annihilation With Quantum Monte Carlo.
P-33	Randall W. Gladen , <i>University of Texas at Arlington, USA</i> : Multi-Functional Positron Beam for the Coincident Measurement of the Energy Spectra of Doppler-Shifted Annihilation Gamma Quanta and Positron Annihilation-Induced Electrons.
P-34	Alexander J. Fairchild , <i>University of Texas at Arlington, USA</i> : Positron annihilation induced Auger electron spectroscopy (PAES) measurements of a TiO ₂ (110) surface.
P-35	Varghese A. Chirayath , <i>University of Texas at Arlington, USA</i> : Doppler broadening spectra from multilayer graphene on copper.
P-36	Ján Lančok , <i>Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic</i> : Effect of oxygen pressure on optical and electrical properties of single-crystalline Cu ₂ O fabricated by pulsed laser deposition.
P-37	Matúš Šaro , <i>Slovak University of Technology, Bratislava, Slovakia</i> : Characterization of small-scale samples using positron sources.
P-38	Soumen Ghosh , <i>University of California San Diego, USA</i> : Effects of Magnetic Non-adiabaticity and Measurement of the Energy Distribution of a Solid Neon Moderated Positron Beam.
P-39	James R. Danielson , <i>University of California San Diego, USA</i> : New Measurements of Positron Annihilation on Molecules.
P-40	Riina Kadokura , <i>University College London, UK</i> : Angle resolved (e ⁻ +H ₂ O) measurements near 0°.

P-41	František Lukáč , <i>Institute of Plasma Physics of the Czech Academy of Sciences, Prague, Czech Republic</i> : Defects in thin layers of high entropy alloy HfNbTaTiZr.
P-42	Ivan Procházka , <i>Charles University, Prague, Czech Republic</i> : Quenched-in vacancies and hardening of Fe-Al intermetallics.
P-43	Jakub Čížek , <i>Charles University, Prague, Czech Republic</i> : Slow positron beam with digital Doppler broadening spectrometer and <i>in-situ</i> film deposition by electron evaporation
P-44	Tomáš Vlasák , <i>Charles University, Prague, Czech Republic</i> : Surface characterization of Si single crystals modified by laser irradiation.
P-45	Jorge L.S. Lino , <i>Instituto Alpha Lumen, São Paulo, Brazil</i> : Positron-impact excitation of the \tilde{A}^1B_1 electronic state of water.
P-46	Saurabh Mukherjee , <i>Bhabha Atomic Research Center, Trombay, Mumbai, India</i> : Design of picosecond pulsed positron beam for defect characterization.
P-47	Jakub Čížek , <i>Charles University, Prague, Czech Republic</i> : PLRF code for decomposition of positron lifetime spectra
P-48	Fuyan Liu , <i>Institute of High Energy Physics, Beijing, China</i> : (To be specified later).
P-49	Lichao Tian , <i>National University of Defense and Technology, Changsha, China</i> : (To be specified).
P-50	Hadar Steinberg , <i>Jerusalem</i> : (To be specified later).

Lunches will be served in the restaurant Profesní dům located at the basement of the conference venue in the period 13:00-14:00 each day of conference except of Wednesday, September 4 when lunch pack will be provided before departure to the excursion.

Coffee & refreshments will be provided during breaks between sessions at the corridor in front of the lecture room.

Social events & excursions

Monday, September 2, 2019, 18:30-22:00

Welcome reception will be organized in the restaurant Profesní dům located at the basement of the conference venue.

Monday, September 2, 2019, 18:30-20:00

Excursion to the St Wenceslas rotunda, a Romanesque church originating from the early 11th century. The foundations of the rotunda are located in the basement of the conference venue and were re-discovered and renovated in 2016 after almost 400 years of forgetting. A lion tile from the Rotunda medieval floor is used in the SLOPOS-15 logo. Guided excursion will be organized in small groups of 30 persons during the welcome reception. Duration of excursion is around 30 min.

Beginning of the excursion: **time: 18:30** (the first group), **place: conference venue**

Tuesday, September 3, 2019, 20:00 – 22:00

Evening excursion to the Prague castle - the symbol of Prague and the most important Prague's sightseeing. The tour will be organized in several groups of around 30 people and will start after the poster session in front of the St. Nicolas Church located just beside the conference venue. After visiting of the Prague castle, Lesser town, Kampa and the Charles bridge the excursion will end back at the conference venue.

Please note that there is a security check at the entrance to the Prague castle. Visitors have to walk through a security frame. Guns, knives or other weapons are not allowed to take inside. Liquids are OK.

Beginning of the excursion: **time: 20:00, place: conference venue**

Wednesday, September 4, 2019, 13:30 – 22:00

Excursion to Kutná hora, UNESCO heritage town established in the beginning of 12th century and located in the Central Bohemian region. The development of Kutná Hora is closely connected with the exploitation of the silver mines which gained importance during the economic boom of the 13th century. Kutná hora has well preserved historical centre with Medieval, Gothic, Renaissance and Baroque buildings. The excursion includes visits of three important heritages in Kutná Hora:

- St. Barbara's Church, a jewel of the late Gothic period
- Church of the Assumption of Our Lady and Saint John the Baptist, the first High Gothic building in the Kingdom of Bohemia.
- Sedlec Ossuary, an extraordinary chapel containing the skeletons of 40,000-70,000 people

The participants will be transported to Kutná hora and back by buses. Lunch pack will be provided.

A dinner will be organized in the restaurant Dačický, Rakova 8, Kutná Hora

Time schedule of the excursion:

13:30 – departure from the street U Burských kasáren, Praha 1, **see point B on the map**

15:00 – arrival to Kutná Hora

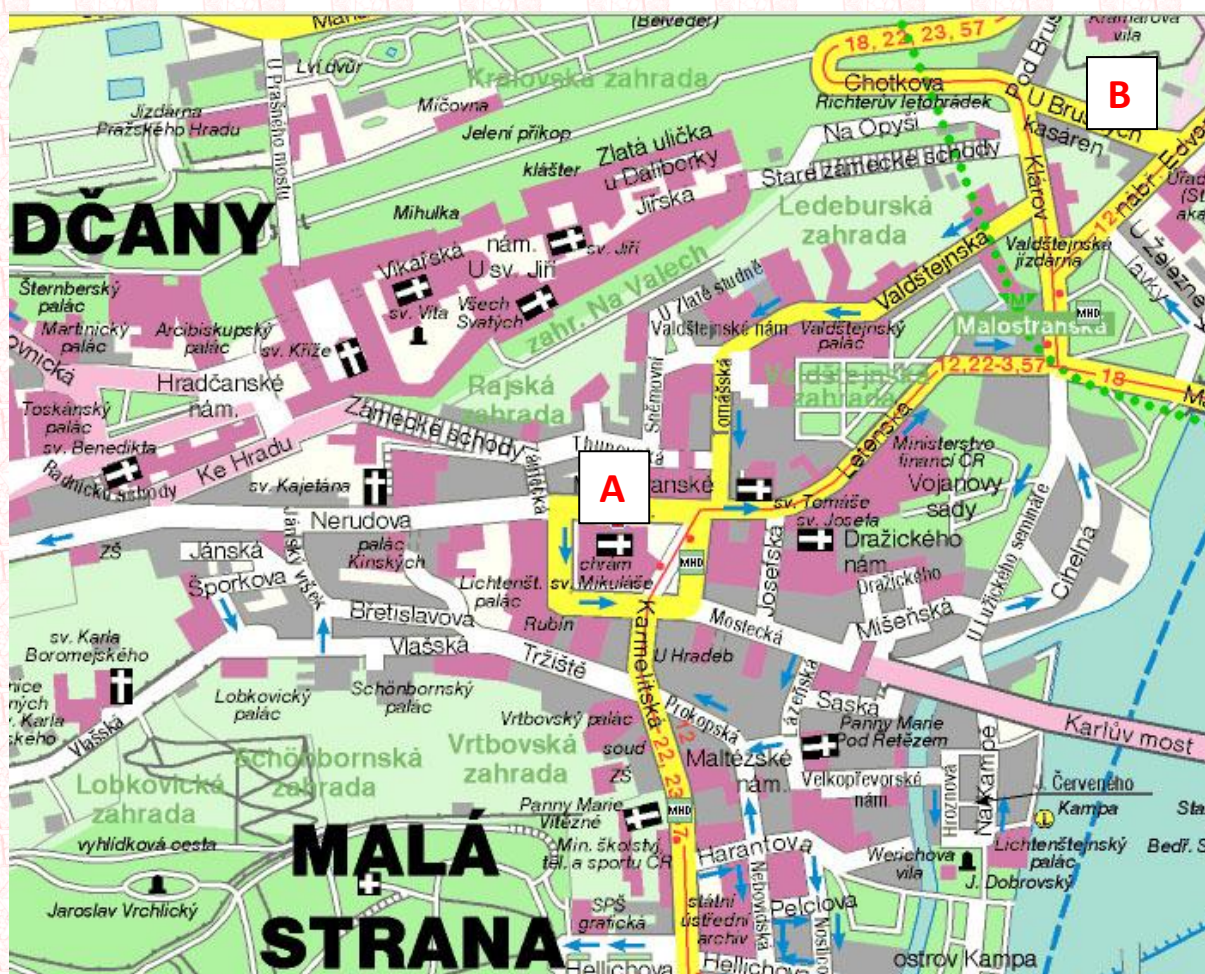
15:00 – 18:30 visit of St. Barbara's Church, Church of the Assumption of Our Lady and Saint John the Baptist and Sedlec Ossuary

18:30-20:30 dinner in the restaurant Dačický

20:30 – departure from Kutná Hora

22:00 – arrival to the street U Burských kasáren, Praha 1

Beginning of excursion: **time: 13:30, place: buses will depart from the street U Burských kasáren located 10 min by walking from the conference venue, see point B on the map.**



A - conference venue

B - departure of buses to the excursion

Thursday, September 5, 2019, 19:00-23:00

Conference dinner will be served in the aula of the House of Professed located in the first floor of the conference venue, Malostranské náměstí (Lesser Town square) 2/25 Praha.

Friday, September 6, 2019, 15:00 – 20:00

Laboratory tour - excursion to the laboratory of positron annihilation spectroscopy at The Charles University, Prague and Laboratories of tandemron accelerator, cyclotron and fast neutron sources at the Nuclear Physics Institute of the Czech Academy of Science located in Řež near Prague. Note that a prerequisite of the participation at the laboratory tour is that participants provided organizers with their personal data necessary for their registration for visiting the facilities at the Nuclear Physics Institute, Řež.

Time schedule of the laboratory tour:

15:00 – departure from the street U Burských kasáren, Praha 1, **see point B on the map**

15:30 – arrival to the Nuclear Physics Institute of the Czech Academy of Science in Řež

15:30 – 17:30 visit of the laboratories of tandemron, cyclotron and fast neutron sources

17:30 – departure from the Nuclear Physics Institute of the Czech Academy of Science in Řež

18:00 – arrival to the Troja campus, Charles University, Prague

18:00 – 20:00 visit of the laboratory of positron annihilation spectroscopy

20:00 – departure the Troja campus, Charles University, Prague

20:15 – arrival to the street U Burských kasáren, Praha 1

Beginning of excursion: **time: 15:00, place: buses will depart from the street U Burských kasáren located 10 min by walking from the conference venue, see point B on the map.**

Weather

The weather is usually very nice in September. The average daytime temperatures around 20°C can be expected.

Currency

The official currency is the Czech Crown (CZK). An approximate exchange rate is 1 USD = 22.8 CZK, 1 EUR = 25.3 CZK (August 2019). Credit cards (Visa or Mastercard) are widely accepted at all supermarkets, hotels and also in most tourist places.

Transport

Prague has fast, efficient and relatively cheap public transport. We recommend using it. Three kinds of public transport can be used: Metro (Underground), trams, buses. The conference venue can be reached by trams (tram station **Malostranské náměstí** is located directly in the front of the conference building). Trams No. 12,22,20,15,23,1,2,25,14 go to this station. The conference venue is also in a walking distance (10 min) from the metro station **Malostranská** (line A).

See SLOPOS-15 web page <https://physics.mff.cuni.cz/kfnt/slopos/?page=travel> for more information about transport in Prague.

On the behalf of the Organizing committee I wish you pleasant journey and I am looking forward to see you soon in Prague.

Jakub Čížek

