



**80th International Scientific
Conference of the
University of Latvia 2022**



**Nanotechnologies and Radiation Processes
Programme**

University of Latvia, Institute of Chemical Physics
Online meeting

February 3 - 4, 2022

[EET Time zone]		February 3, 2022
11:00 11:05	Opening	
KEY PRESENTATIONS		
11:05 11:45	<p>The recycling of waste heat through the application of nanofluidic channels (TRANSLATE) J. D. Holmes <i>School of Chemistry & Environmental Research Institute, University College Cork, Cork, Ireland</i></p> <p>S. Hardt <i>Institute for Nano- and Microfluidics, Technische Universität Darmstadt, Germany</i></p> <p>S. Dutta <i>Institute for Nano- and Microfluidics, Technische Universität Darmstadt, Germany</i></p> <p>I. Nedrygailov <i>School of Chemistry University College Cork, Cork, Ireland</i></p>	
11:45 12:25	<p>Astronomy-oriented THz detection with graphene S. Lara-Avila <i>Quantum Device Physics Laboratory, Department of Microtechnology and Nanoscience, Chalmers University of Technology, 412 96 Goteborg, Sweden</i></p>	
Lunchtime break		
ENERGY / MATERIALS / RADIATION PROCESSES		
13:00 13:20	<p>Extraction and mass-separation of ^{43,44,47}Sc radionuclides from irradiated natural Ti targets at the CERN-MEDICIS facility E. Mamis <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i> <i>CERN, Esplanade des Particules 1, Geneva, Switzerland</i></p>	
13:20 13:40	<p>Blended vs. exfoliated Bi₂Se₃/CNT hybrid structure-based thermoelectric nanocomposites – properties and applications K. Buks <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i> <i>3D Strong Ltd., Instituta str. 36-17, LV-2130, Ulbroka, Stopinu nov., Latvia</i></p>	
13:40 14:00	<p>The formation of solid electrolyte interface on Bi₂Se₃ thin films from aqueous electrolytes Y. Rublova <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i></p>	
Break (10 min)		
14:10 14:30	<p>Porous anodized aluminium oxide thickness determination employing spectroscopic ellipsometry A. Jurkevičiūte <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i></p>	
14:30 14:45	<p>Application of PEM cells for hydrogen isotope separation R. J. Zabolockis <i>Institute of Chemical Physics</i> <i>Faculty of Chemistry, University of Latvia, Jelgavas str. 1, Riga, Latvia</i></p>	

14:45 15:00	Seebeck coefficient and resistance of flexible carbon nanotube-bismuth selenide thermoelectric thin films L. Bugovecka <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
15:00 15:15	Changes in tritium concentration after sorption depending on storage conditions E. Lagzdina <i>Institute of Chemical Physics Faculty of Chemistry, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
Break (15 min)	
15:30 15:50	Self-assembled gold nanoparticle arrays for antigen based biosensors A. Dutovs <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
15:50 16:10	Microfluidic mixers and magnetic particle capture chambers based on OSTP polymer J. Cipa <i>Faculty of Physics, Mathematics and Optometry, University of Latvia, Jelgavas str. 3, Riga, Latvia Cellboxlab Ltd., Kengaraga street 8</i>
16:10 16:25	Automated dataset acquisition for nanoporous anodic alumina sensor substrate production monitoring and performance evaluation V. Perkaņuks <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
16:25 16:45	Deep trapping states in cerium doped $Gd_3Ga_3Al_2O_{12}$ T. E. Šusts <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>

[EET Time zone]		February 4, 2022
3D TOPOLOGICAL INSULATORS / RADIATION PROCESSES		
10:00 10:20	Obtaining quantum confinement in topological insulator nano-devices X. Palermo <i>Quantum Device Physics Laboratory, Department of Microtechnology and Nanoscience, Chalmers University of Technology, Goteborg, Sweden</i>	
10:20 10:40	Synthesis and structural characterization of magnetically-doped Bi_2Se_3 nanowires A. Felsharuk <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>	
10:40 11:00	Charge transport properties of encapsulated topological insulator nanoribbons G. Kunakova <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>	
Break (10 min)		
11:10 11:30	Tritium retention in plasma facing materials of JET ITER-Like-Wall campaigns and factors influencing it A. S. Teimane <i>Institute of Chemical Physics Faculty of Chemistry, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>	
11:30 11:50	Spectrometric analysis of agriculture residual fibers L. Avotina <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>	
11:50	Photoluminescence of lithium orthosilicate pellets prepared via solid-state synthesis	

12:05	M. Seņko <i>Institute of Chemical Physics Faculty of Chemistry, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
12:05 12:20	Manufacturing and characterisation of flexible Bi ₂ Se ₃ /CNT heterostructure thermoelectric materials L. Brauna <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
Lunchtime break (40 min)	
13:00 13:20	Physical vapor deposition synthesis of Bi ₂ Se ₃ nanoribbons on thermally dewetted Au nanoparticles R. Sondors <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
13:20 13:40	Epitaxial growth of topological insulator thin films by physical vapor deposition technique K. Niherysh <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
13:40 14:00	Bottom-up synthesized Bi ₂ Se ₃ nanoribbons for applications in nanoelectromechanical switches L. Jasulaneca <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
Break (10 min)	
14:10 14:25	Chemisorbed gaseous compounds on surface of lithium orthosilicate containing ceramic materials analysed by gravimetry and TG/DTA-FTIR spectrometry A. Ansonē <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
14:25 14:40	Method development of permeation studies for tritium-labelled water vapour for proton-exchange membranes P. Kalnina <i>Institute of Chemical Physics, University of Latvia, 1 Jelgavas str., Riga, Latvia</i>
14:40 14:55	Methods for fabricating networks from copper oxide nanowires synthesized by thermal oxidation D. Gavars <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
14:55 15:10	Study on formation of radiation-induced defects in advanced ceramic breeder pebbles using different types of ionising radiation and absorbed dose M. Tomele <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
Break (10 min)	
15:20 15:40	Characteristics of ionic transport in highly ordered nanoporous aluminium oxide membranes V. Malyshev <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
15:40 15:55	Tungsten nanolayer gradual oxidation and oxide analysis by infrared spectrometry A. E. Goldmane <i>Institute of Chemical Physics, University of Latvia, Jelgavas str. 1, Riga, Latvia</i>
15:55 16:00	Closing remarks