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Alexander von
HUMBOLDT
STIFTUNG



Хумболтов съюз в България
Humboldt Union Bulgarien

Humboldt Kolleg

"Human and artificial intelligence in science and society"



12-15 September 2024
Sofia, Bulgaria
Grand Hotel Millennium

12.09.2024	
15.30 – 17.30 REGISTRATION In front of hall Newton, 3 rd floor	
17.30 – 18.15 OPENING Hall Newton Chair: Georgi Vayssilov	
<ul style="list-style-type: none"> • President of the Humboldt Union in Bulgaria • President of the Alexander von Humboldt Foundation • German officials • Bulgarian officials 	
18.15 – 19.00 Plenary lecture	
Ilza Pajeva, Troyo Troev (Bulgaria) <i>Bulgarian Academy of Sciences</i> <i>Humboldt Union in Bulgaria: past, present and future</i>	
19.00 – 21.00 Reception	
13.09.2024	
09.00 – 10.30 SESSION Hall Newton:	
Chair: Violeta Velikova	
09:00 – 09:45	
Robert Schlögl – <i>President of the Alexander von Humboldt Foundation</i> <i>Ammonia Synthesis – the never ending story</i>	
09:45 – 10:30	
Silviya Ilieva (Bulgaria) Gate Institute, Sofia University <i>Urban Digital Twin Empowered by Human-Centric AI: GATE Success Stories</i>	
10:30 – 10:50 Coffee break	
10:30 – 12:30: Hall Newton PARALLEL SESSION: Artificial intelligence in science and education	10:30 – 12:30: Hall Columb 1 PARALLEL SESSION: Humanities

<p>Chair: Nikolay K. Vitanov</p> <p>10:50 – 11:10 Petar Kenderov (Bulgaria) <i>The High School Institute of the Bulgarian Academy of Sciences and the Artificial Intelligence</i></p> <p>11:10 – 11:30 Dilyana Boteva, Ivajla Popova, Julia Tzvetkova, Desislava Vladimirova, Lily Grozdanova (Bulgaria), Ulrike Peter (Germany) <i>Digital Humanities, AI, and Higher Education</i></p> <p>11:30 – 11:50 Daniel Danchev, Gergana Nikolova (Bulgaria) <i>On the Increasing Role of AI in the Biomechanics of Humans</i></p> <p>11:50 – 12:10 Khristo Tarnev, Elena Halova (Bulgaria) <i>Elements of AI in commercial products for physics simulations</i></p> <p>12:10 – 12:30 Magdalena Parcheva (Bulgaria) <i>Artificial Intelligence and Workplace Innovations</i></p>	<p>Chair: Valery Stojanov</p> <p>10:50 – 11:10 Alexander Kartosia (Georgia) <i>Wer hat das geschrieben? Zur literarischen Bearbeitung des Theorems der zufälligen Entstehung sinnvoller Texte</i></p> <p>11:10 – 11:30 Maria Endreva (Bulgaria) <i>Das Konzept von der Singularität (Ray Kurzweil) und seine Auswirkung auf die Reorganisation der menschlichen Arbeit in Werken der deutschsprachigen Gegenwartsliteratur</i></p> <p>11:30 – 11:50 Nikolina Burneva (Bulgaria) <i>Die deutsche Romantik und ihre Sicht auf den Maschinenmenschen: E. Th. A. Hoffmann</i></p> <p>11:50 – 12:10 Ewa Wojno-Owczarska (Poland) <i>Gefahren der Entwicklung künstlicher Intelligenz am Beispiel von Michael Stauffers Hörspiel "Das großartige Mimei" (2023) und Spike Jonzes Film "Her" (2016)</i></p> <p>12:10 – 12:25 Dariya Manova (Austria) <i>Zwischen Kollektiver und Künstlicher Intelligenz. Gruppenakteure in der Deutschsprachigen Gegenwartsliteratur</i></p>
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12:30 – 14:00 Lunch	
14:00 – 15:30: Hall Newton PARALLEL SESSION: Artificial intelligence in science and education	14:00 – 15:30: Hall Columb 1 PARALLEL SESSION: Humanities
Chair: Albena Paskaleva 14:00 – 14:20 Nikolay K. Vitanov (Bulgaria) <i>Mathematical social dynamics and Artificial Intelligence</i> 14:20 – 14:40 Roumen Tsekov (Bulgaria) <i>Social thermodynamics 2.0</i> 14:40 – 15:00 Mariya Yavahchova, Dimitar Tonev, Ari Artinyan (Bulgaria) <i>Artificial intelligence in experimental nuclear physics</i> 15:00 – 15:15 Krasimir Georgiev (Bulgaria) <i>Machine learning and Artificial Intelligence in the applications of the environmental fluid mechanics</i> 15:15 – 15:30 Kaloyan Vitanov (Bulgaria) <i>Motion of researchers between research organizations: Can AI help to direct the process?</i>	Chair: Nikolina Burneva 14:00 – 14:20 Ruxandra Cosma, Marc Kupietz (Romania, Germany) <i>Sprachvergleich, Korpus-technologie und Künstliche Intelligenz</i> 14:20 – 14:40 Mariya Chankowa, Irena Vassileva (Bulgaria) <i>ChatGPT and implications for authorship: the (in)possible creator</i> 14:40 – 14:55 Simeon Ganev (Bulgaria) <i>Wenn Maschinen sehen und hören lernen: Zur audiovisuellen Transformation</i> 14:55 – 15:10 Ivan Yanakiev (Bulgaria) <i>Artificial Intelligence and composition of music</i>

15:30 – 16:00 Coffee break	
16:00 – 17:30: Hall Newton PARALLEL SESSION: Natural and Mathematical Sciences	16:00 – 17:30: Hall Columb 1 PARALLEL SESSION: EBiological Sciences
Chair: Petar Petrov 16:00 – 16:20 Albena Paskaleva (Bulgaria) <i>Materials and structures for neuromorphic computing</i> 16:20 – 16:40 <u>Kristina Simeonova</u> , Rositca Nikolova, Petko Petkov (Bulgaria) <i>Quantum chemical investigation of the reaction path of coumarin derivatives</i> 16:40 – 17:00 <u>Lyubomir Stoyanov</u> , Nikolay Dimitrov, Gerhard G. Paulus, Alexander Dreischuh (Bulgaria, Germany) <i>Beam shaping of few-cycle laser pulses</i> 17:00 – 17:20 <u>Georgi Simeonov</u> , Ognyan Kounchev (Bulgaria) <i>On polyspline Kolmogorov-Arnold Networks and their application to solution of Elliptic boundary value problems</i>	Chair: Violeta Velikova 16:00 – 16:20 James Olopade (Nigeria) <i>Prevalence and Tissue Colocalization of Neurotrophic Viruses in Natural and Potential Reservoir Hosts in Nigeria</i> 16:20 – 16:40 <u>Maya Zaharieva</u> , Pelagia Foka, Dimitrina Zheleva-Dimitrova, Stanislav Philipov, Eirini Karamichali, Tanya Chan Kim, Yana Ilieva, Mila Kaleva, Anna Bratchlova, Vessela Balabanova-Bozushka, Reneta Gevrenova, Alexander Kroumov, Urania Georgopoulou, Hristo Najdenski (Bulgaria) <i>Antiviral activity of photosensitizers and microalgae extracts against bovine coronavirus</i> 16:40 – 16:55 <u>Yana Ilieva</u> , Lyubomira Yocheva, Maya M. Zaharieva, Heliana Dundarova, Radoslava Emilova, Rayna Antova, Mila D. Kaleva, Tanya Chan Kim, Hristo Najdenski (Bulgaria)

	<p><i>Bacterial isolates from bats – potential sources of antimicrobial resistance?</i></p> <p>16:55 – 17:10 Mila Kaleva, Stanislav Filipov, Maya Zaharieva, Sevda Navdenska, Pelagia Foka, Eirini Karamichali, Eftimia Koufogeorgou, Konstantin Grudkov, Urania Georgopulou, Hristo Najdenski (Bulgaria) <i>Pathological findings in rabbits infected with pseudotyped viruses expressing the SARS-CoV-2 Spike protein</i></p>
18:00 – 21:00 Dinner	
14.09.2024	
<p>09:00 – 10:40: Hall Columb 1 PARALLEL SESSION: Medical and Life Sciences</p>	<p>09:00 – 10:40: Hall Columb 2 PARALLEL SESSION: Chemical Sciences</p>
<p>Chair: Ilza Pajeva</p> <p>09:00 – 09:20 <u>Radka Argirova, Trifon Valkov, George Dimitrov</u> (Bulgaria) <i>Widely neutralizing antibodies to conserved virion structures of HIV – a new perspective for vaccines targeting viruses with high mutation rate</i></p> <p>09:20 – 09:40 <u>Trifon Valkov, George Dimitrov, Radka Argirova</u> (Bulgaria)</p>	<p>Chair: Liudmil Antonov</p> <p>09:00 – 09:20 <u>Antonio Ljulj, Valerije Vrcek</u> (Croatia) <i>Chemical fate of pharmaceuticals in the environment: NMR and Quantum-chemical study</i></p> <p>09:20 – 09:40 <u>Mina Todorova, Lyudvika Radeva, Rumyana Bakalska,</u></p>

Bewertung der Wirksamkeit des COVID-19-Impfstoffs in einem Land mit geringer Impfabdeckung: Erkenntnisse aus realen Daten und Propensity-Score-Matching-Analysen

09:40 – 09:55

Martina Peeva (Bulgaria)

Cytotoxic and antiproliferative effects of new potential anti-bacterial agents

09:55 – 10:10

Ivan Bogdanov (Bulgaria)

From in silico to in vitro evaluation of novel Factor XIIIa inhibitors

10:10 – 10:30

Elina Beleva, Ivanka Tsakovska, Petko Alov, Tania Pencheva, Iglilika Lessigiarska, Antonia Diukendjieva, Ilza Pajeva (Bulgaria)

Computational study to predict P-glycoprotein binding potential of tyrosine kinase inhibitors for cancer treatment

Stoyanka Atanasova, Tsonko Kolev (Bulgaria)

Synthesis, spectral study, and biological activity of a new styryl quinolinium dye

09:40 – 10:00

Nikoleta Kircheva, Silvia Angelova, Todor Dudev (Bulgaria)

Abiogenic metal cations in medicine: Computational insights into the mechanism of their therapeutic action

10:00 – 10:20

Iliyana Peltekova, Ivo Lozanov (Bulgaria)

Experimental study of some thermodynamic characteristics of two- and three-component aqueous solutions of strong electrolytes as functions of their concentration

10:20 – 10:35

Ekaterina Koleva, Kalina Koleva (Bulgaria)

Enzymatic browning or why fruits and vegetables lose their quality after damaging of cell integrity

10:40 – 11:00 Coffee break	
11:00 – 13:00: Hall Columb 1 PARALLEL SESSION: Medical Science	11:00 – 13:00: Hall Columb 2 PARALLEL SESSION: Humanities
Chair: Radka Argirova	Chair: Lora Taseva
11:00 – 11:20 Nikolai Lazarov, Dimitrinka Atanasova (Bulgaria) <i>The carotid body: A polymodal arterial chemoreceptor</i>	11:00 – 11:20 Thomas Daiber (Germany) <i>The text as a communicative unit. Consequences for applications of AI</i>
11:20 – 11:40 Petja Vassileva, Yordanka Kirilova (Bulgaria) <i>Potential role of AI in diagnosis of low tension glaucoma</i>	11:20 – 11:40 Dobriela Kotova (Bulgaria) <i>Eine intellektuelle Heldentat des 9. Jahrhunderts: Konstantin von Preslav und sein Lehrevangelium</i>
11:40 – 12:00 Tatyana Hergeldzhieva-Fileva, Petja Vassileva (Bulgaria) <i>Artificial intelligence in the Follow-up of Glaucoma patients</i>	11:40 – 12:00 Achim Rabus (Germany) <i>From Parchment to Programming: AI's Adventures in Language Analysis</i>
12:00 – 12:20 Radka Kaneva (Bulgaria) <i>Influence of the host genome on COVID-19 susceptibility and severity of disease in Bulgarian patients</i>	12:00 – 12:20 Ivan Petrov (Austria) <i>Digitalinstrumente und Altslawistik: methodologische Bemerkungen</i>
12:20 – 12:40 Darina Kachakova, Kalina Mihova, Rumyana Dodova, Veronika Petkova, Radka Kaneva (Bulgaria) <i>Germline genetic analysis of patients with oncological diseases</i>	12:20 – 12:35 Fabio Maion (Austria) <i>Using artificial intelligence to study intellectual works of the Middle Ages. The example of the Middle Bulgarian Dioptra translation</i>

<p>12:40 – 13:00 Anita Kavrakova, Elena Todorova, Bilyana Georgieva, Feodor Odzhakov, Svitlana Bachurska, Maria-Elena Boyadzhieva, Vanyo Mitev, Albena Todorova (Bulgaria) <i>Role of Herpesviridae family in prostate cancer onset, immuno-compromised status and progression in the tumor environment</i></p>	
13:00 – 14:00 Lunch	
<p>14:00 – 15:30 – Round Table: Perspectives and future of artificial intelligence and its interaction with the society Nikolay K. Vitanov moderator</p> <p>16:00 – 19:00 – SOCIAL PROGRAMME: Guided tour in Sofia</p>	
19:30 – 22:30 Dinner	
15.09.2024	
<p>09:00 – 10:40: Hall Newton PARALLEL SESSION: Biological Sciences</p>	<p>09:00 – 10:40: Hall Columb 1 PARALLEL SESSION: Chemical Sciences</p>
<p>Chair: Maya Zaharieva</p> <p>09:00 – 09:20 Aleksandar Ategin, Aneliya Ivanova, Rumen Stamatov, Sonya Dimitrova-Uzunova, Stoyno Stoynov, (Bulgaria) <i>Kinetics of SARS-CoV-2 entry into cells</i></p> <p>09:20 – 09:40 Maria Sakelarieva, Yozlem Kobakova, Petar Atanasov, Spiro Konstantinov (Bulgaria) <i>COVID19 and lymphoma with skin localization</i></p>	<p>Chair: Liudmil Antonov</p> <p>09:00 – 09:20 Tsonko Kolev (Bulgaria) <i>New structural motifs of squaric acid derivatives of amino acids, amino acid amides and diamides</i></p> <p>09:20 – 09:40 Lidia Zaharieva, Ivan Angelov, Liudmil Antonov (Bulgaria) <i>Investigating the influence of the external electric field on the tautomerism in 7-hydroxyquinoline derivatives</i></p>

<p>09:40 – 10:00 <u>Yozlem Kobakova</u>, Maria Sakelarieva, Petar Atanasov, Spiro Konstantinov (Bulgaria) <i>COVID-19 AND CLL (chronic lymphocytic leukemia)</i></p> <p>10:00 – 10:20 <u>Sonya Uzunova</u>, Rumens Stamatov, Stoyno Stoynov (Bulgaria) <i>Studying DNA-protein crosslink (DPC) repair protein kinetics via live-cell microscopy and machine learning approaches</i></p> <p>10:20 – 10:40 <u>Sylvia Varhoshkova</u>, Stoyno Stoynov (Bulgaria) <i>Dark holes at the microscopic level</i></p>	<p>09:40 – 10:00 <u>Marianna Vasilaki</u>, Nikoleta Ivanova, Stoyan Iliev, Jasmina Petrova, Gergana Gocheva, Galia Madjarova, Anela Ivanova (Bulgaria) <i>Quantitative assessment of the intermolecular interactions between folate-based vectors and the folate receptor-α</i></p> <p>10:00 – 10:20 <u>Iskra Z. Koleva</u>, Christo T. Tzachev (Bulgaria) <i>Encapsulation of eugenol by spray drying using Soluplus[®] and Lutrol F127 as solid carriers</i></p> <p>10:20 – 10:40 <u>Dilyan Gavrailov</u> (Bulgaria) <i>3D flow field design in proton-exchange membrane hydrogen fuel cells</i></p>
<p>10:40 – 12:00 Closing session Hall Newton</p>	
<p>Chair: Maria Endreva</p> <p>10:40 – 11:10 Sabine Meisel-Funk – Alexander von Humboldt Foundation (Germany) <i>Presentation of the programs of the Alexander von Humboldt Foundation</i></p> <p>11:10 – 11:30 Questions and Answers</p> <p>11:30 – 12:00 Closing remarks and certificates</p>	