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Sustainability and Resilience

Budapest, 3-7 September 2017

http://ae-allea-yae-conference2017.org/

Burgen Scholars 2017

Biographical Notes

(in alphabetical order by family name)

TITLE AND NAME:
Éva Dékány PhD

AFFILIATION: Research Institute for Linguistics of the Hungarian Academy of Sciences

LINK TO WEBPAGE:
http://www.nytud.hu/depts/tlp/dekany/index.html
https://sites.google.com/site/dekanylinguistics/home

FIELD OF SCHOLARSHIP:
Linguistics

BIOGRAPHICAL NOTE:

Éva Dékány was born on March 18, 1983 in Kecskemét, Hungary. She graduated from Eötvös University (Budapest) as an M.A. in English Language and Linguistics in 2006 and as an M.A. in Theoretical Linguistics (with distinction) in 2007. She pursued a doctoral degree at the Center for the Advanced Study of Theoretical Linguistics at the University of Tromsø between 2007 and 2011, defending her PhD thesis in 2012. Since 2012, she has been working at the Research Institute for Linguistics of the Hungarian Academy of Sciences (RIL HAS). Between 2013 September and 2017 August, she held two successive postdoctoral grants from HAS. In 2016 she received the József Herman Young Researcher's Prize from RIL HAS and the Prima Junior Award from the Prima Primissima Foundation. As of 2017 September, she is the holder of a Premium postdoctoral grant from the Academy.

DETAILS OF RESEARCH:

Éva Dékány's work has had two main strands: the noun phrase (NP) and (non-finite) clausal subordination. International research shows that the NP has a finer structure than previously thought, but the new results after the late 90's were not applied to Hungarian. She integrated this research into the analysis of the Hungarian NP and set up a new, refined model thereof, which is new both in its details and justification. She was the first to describe and analyze Hungarian classifiers. She provided the first detailed analysis of the possessive *-é* suffix, and (in co-authored work) the first analysis of Hungarian possessors that can only bear Dative case. She gave the first model of Old Hungarian non-finite embedded clauses and in co-authored work provided the first formal analysis of how Hungarian relative pronouns grammaticalized. She is one of the first linguists to apply formal grammatical models to Khanty and Udmurt in general and embedded clauses in particular. She also collaborates on the 'Comprehensive Grammar Resources: Hungarian' project at RIL HAS that is preparing the most detailed grammatical description of Hungarian to date.

THREE KEY PUBLICATION REFERENCES:

Dékány, Éva. to appear. *The Hungarian nominal functional sequence*. Studies in Natural Language and Linguistic Theory series. Dordrecht: Springer.

Dékány, Éva. accepted. The position of case markers relative to possessive agreement: variation within Hungarian. *Natural Language and Linguistic Theory.*

Dékány, Éva. 2015. The syntax of anaphoric possessives in Hungarian. *Natural Language and Linguistic Theory* 33(4): 1121-1168.

TITLE AND NAME:
Éva Dóka PhD

AFFILIATION:
National Institute of Oncology, Budapest, Hungary

LINK TO WEBPAGE:
http://www.onkol.hu/en/department-molecular-immunology-and-toxicology-mito

FIELD OF SCHOLARSHIP:
Chemistry

BIOGRAPHICAL NOTE:

Place of studies: University of Debrecen
MSc in Chemistry, 2012
BSc in Mathematics, 2013
PhD in Chemical Sciences, 2016

Thesis: Experimental and Modelling Studies on the Reactions of the Sulfate Ion Radical
Supervisor: Dr. Gábor Lente, Dept. of Inorganic and Analytical Chemistry

Current occupation: Chemist
National Institute of Oncology,
Dept. of Molecular Immunology and Toxicology, Budapest, Hungary

Foreign studies:

Karolinska Institutet, Stockholm	1 month
Tohoku University, Sendai, Japan	2 months

DETAILS OF RESEARCH:

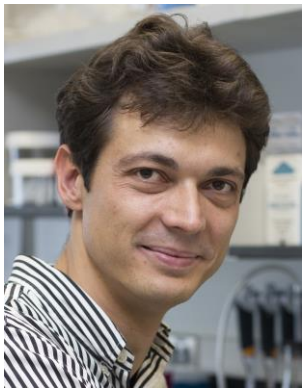
I have been trained in the experimental and computational methods of solution phase reaction kinetics, and the studies of the mechanism of complex redox reactions, mainly regarding environmental chemistry.
I am currently involved in fundamental biochemical research. Our group has two main lines of interest, the biological actions of hydrogen sulfide, a newly recognized, endogenously produced signalling molecule, and the redox regulation of thiol proteins by various posttranslational modifications. A close linker between these subjects are the formation of protein persulfide and polysulfide moieties on cysteine side chains, which was previously shown to regulate enzymatic activities. In our laboratory, we developed a novel experimental method for the detection of protein persulfidation from biological materials such as living cells or tissue samples. Furthermore, we showed that global persulfidation level is tightly regulated by the major disulfide reductase machineries of the cells, the thioredoxin and the glutathione systems. We are currently examining the consequences of this newly recognized function of the NADPH dependent reductase system on cellular signalling and redox regulation.

THREE KEY PUBLICATION REFERENCES:

Doka, E., et al. *Science Advances*, **2016**, 2, e1500968.

Doka, E., Arnér, E. S. J., Schmidt, E. E., Nagy, P. *Methods in Molecular Biology,* in press

Peralta, D., et al. *Nature Chemical Biology,* **2015**, *11*, 156-63.



TITLE AND NAME:

Balázs Enyedi, MD PhD

AFFILIATION:
Department of Physiology, Semmelweis University

FIELD OF SCHOLARSHIP:
Cell Biology and Physiology

BIOGRAPHICAL NOTE:

Balázs Enyedi obtained his medical degree with honours from the Semmelweis University, Budapest in 2006. He joined the laboratory of Miklós Geiszt as a graduate student to study the intracellular role of hydrogen peroxide. After completing his PhD thesis in 2011 he was invited as a postdoctoral fellow to Memorial Sloan Kettering Cancer Center (New York), to the laboratory of Philipp Niethammer, where he was funded by the Lucille Castori fellowship. His research interest shifted towards understanding the mechanisms of tissue damage induced inflammation. His discoveries here earned him publications in prominent journals such as Nature Cell Biology and Cell.

Balázs has published close to 20 research and review papers and has been invited to several prestigious Gordon and Keystone conferences as a speaker. He was the recipient of the Junior Príma Prize from the Prima Foundation in Hungary, the Premium Postdoctoral Scholarship of the Hungarian Academy of Sciences. He holds a Starting Grant from the Semmelweis University where he was recently appointed as an Assistant Professor to establish his laboratory in the Department of Physiology.

DETAILS OF RESEARCH:

As a PhD student Balázs focused on understanding the intracellular role and production of reactive oxygen species, mainly hydrogen peroxide (H_2O_2). He was the first to map the level of H_2O_2 in different subcellular compartments and developed highly sensitive and specific genetically encoded H_2O_2 biosensors (Enyedi et al. ARS, 2010 and 2013).

As a postdoctoral fellow Balázs became interested in understanding how epithelial wounding triggers inflammation. Using the zebrafish as a model system he unravelled that injury-induced cell swelling is a central mediator of epithelial wound closure and leukocyte recruitment (Enyedi et al. NCB, 2013). Continuing with this work he showed that the nuclear swelling and membrane stretch serves as a sensor and trigger for inflammatory signalling (Enyedi et al. Cell, 2016).

Balázs is currently establishing his research group in the Department of Physiology to continue his work on nuclear mechanobiology and tissue damage detection.

THREE KEY PUBLICATION REFERENCES:

Enyedi B, Jelcic M, Niethammer P.: “The cell nucleus serves as a mechanotransducer of tissue damage-induced inflammation.” ***Cell***. 2016 May 19;165(5):1160-70

Enyedi B, Niethammer P.: “Mechanisms of epithelial wound detection.” ***Trends Cell Biol.*** 2015 Jul;25(7):398-407.

Enyedi B, Kala S, Nikolich-Zugich T, Niethammer P.: “Tissue damage detection by osmotic surveillance.” ***Nat Cell Biol.*** 2013 Sep;15(9):1123–1130.

TITLE AND NAME:

Gergely Maróti PhD

AFFILIATION:
Hungarian Academy of Sciences, Biological Research Center

LINK TO WEBPAGE:
http://www.brc.hu/biochem_microbial_genomics.php

FIELD OF SCHOLARSHIP:
Biology

BIOGRAPHICAL NOTE:

PhD in Biology (2005), University of Szeged, Hungary
Title of thesis: Insights into the assembly of NiFe hydrogenases
Post-Doctoral position at the J. Craig Venter Institute, Rockville, Maryland, USA. Member of the Synthetic Biology & Bioenergy Team led by the Nobel-Laureate Hamilton O. Smith.
Associate Professor at the Hungarian Academy of Sciences, Biological Research Center since 2012. More than 70 international publications in the field of microbiology.

DETAILS OF RESEARCH:

Symbiotic interactions range from very tight (e.g. organelle endosymbioses) to diffuse associations (e.g. co-localization) with a broad spectrum in between (e.g. predation, parasitism, commensalism, mutualism). These interactions involve elaborate communication between the partners at the cellular level. Our major goal is the discovery of the potential of selected living interactions as specific sources of useful biomolecules and metabolites (e.g. antimicrobial peptides -AMPs-, biofuels, biomaterials, etc.). Microbial associations of various levels are analyzed in details and interrogated for the presence of such products.

THREE KEY PUBLICATION REFERENCES:

Farkas A., Maróti G., Kereszt A. and Kondorosi É. (2017) Comparative analysis of the bacterial membrane disruption effect of two natural plant antimicrobial peptides. *Frontiers in Microbiology* 8:51, doi: 10.3389/fmicb.2017.00051

Lakatos G., Deák Zs., Vass I., Rétfalvi T., Rozgonyi Sz., Rákhely G., Ördög V., Kondorosi É. and Maróti G. (2014) Bacterial symbionts enhance photo-fermentative hydrogen evolution of *Chlamydomonas* algae. *Green Chemistry* 16 (11), 4716 - 4727. doi:10.1039/C4GC00745J

Farkas A., Maróti G., Dürgő H., Györgypál Z., Lima R.M., Medzihradszky K.F., Kereszt A., Mergaert P. and Kondorosi É. (2014) The *Medicago truncatula* symbiotic peptide NCR247 contributes to bacteroid differentiation through multiple mechanisms. *PNAS* 111:5183-88

TITLE AND NAME:

Dömötör Pálvölgyi PhD

AFFILIATION:
Eötvös Loránd University (ELTE Budapest), head of MTA-ELTE Combinatorial Geometry Research Group

LINK TO WEBPAGE:
http://www.cs.elte.hu/~dom/

FIELD OF SCHOLARSHIP:
Mathematics

BIOGRAPHICAL NOTE:

Dömötör Pálvölgyi obtained his PhD degree in mathematics from the Ecole Polytechnique Fédérale de Lausanne (EPFL) in 2010, after which he worked in various positions at the Mathematical Institute of Eötvös Loránd University (ELTE Budapest). He was also a visiting professor at IIT Delhi (2012 spring) and a research fellow at the University of Cambridge (2015-2017). He won the Grünwald Géza medal of the János Bolyai Mathematical Society (2011), the János Bolyai Scholarship of the Hungarian Academy of Sciences (2012), the Postdoctoral Fellowship of the Hungarian Scientific Research Fund (2012), the Marie Sklodowska-Curie Fellowship (IF-EF) of the European Commission (2015) and the Momentum (Lendület) grant of the Hungarian Academy of Sciences (2017).

DETAILS OF RESEARCH:

Dömötör Pálvölgyi mainly works in Combinatorial Geometry, Combinatorics and Theoretical Computer Science. His main focus of research has been in decompositions of multiple coverings and in colorings of geometric hypergraphs. These problems have several applications, related to frequency assignments, sensor covers and similar questions involving partitionings of geometric networks.

THREE KEY PUBLICATION REFERENCES:

Christ T, Pálvölgyi D., Stojakovic M.: Consistent digital line segments, In: ACM PROCEEDINGS OF THE TWENTY-SIXTH ANNUAL SYMPOSIUM ON COMPUTATIONAL GEOMETRY (SoCG'10),. 11-18., 2010.

Keszegh B, Pach J, Pálvölgyi D: Drawing planar graphs of bounded degree with few slopes, Siam J Discrete Math 27(2): 1171-1183, 2013.

Pach J, Pálvölgyi D: Unsplittable coverings in the plane, ADV MATH 302: 433-457, 2016.

TITLE AND NAME:

Balázs Pozsgay PhD

AFFILIATION:
Hungarian Academy of Sciences

LINK TO WEBPAGE:
http://sft.phy.bme.hu/

FIELD OF SCHOLARSHIP:
Physics

BIOGRAPHICAL NOTE:

I obtained an MSc and later a PhD in Physics at Eötvös Loránd University, Budapest. Afterwards I spent 3 years (2010-2012) as a postdoctoral researcher in Amsterdam, at the University of Amsterdam. In the first year I was applied by Jean-Sébastien Caux, and afterwards I got the VENI grant of the NWO (The Netherlands Organisation for Scientific Research). In 2013 I returned to Budapest to work in the recently started research group of Gábor Takács (MTA-BME “Momentum’’ Statistical Field Theory Research Group), and I also obtained the Magyary Zoltán Fellowship. Currently I am applied by the Hungarian Academy of Sciences through the Premium Postdoctoral Program. In 2014 I won the Hungarian “Junior Prima” prize in the category of “Hungarian Science”.

DETAILS OF RESEARCH:

In my research I have been dealing with the so-called Integrable Models of Quantum Mechanics. These are special theories describing interacting many-body systems that can be solved exactly without the need to use approximate methods or computer simulations. The models that I have been investigating include models of quantum magnetism (the Heisenberg spin chain), interacting quantum gases (the Lieb-Liniger model), or exactly solvable Quantum Field Theories. These models are interesting for two main reasons: First of all it is important to study examples of quantum behaviour where analytic solutions can be found. Second, these models describe real materials and/or can be realized experimentally, and we can give predictions for physical properties of these systems. Recently I have been interested in non-equilibrium situations. One of the fundamental questions is how the laws of statistical physics can be derived from the underlying microscopic quantum theory. Our research played an important role in clarifying the statistical physics of integrable models which are actually an exception to the standard laws in many respects.

THREE KEY PUBLICATION REFERENCES:

B. Pozsgay et. al, Phys. Rev. Lett. 113 (2014) 117203

B. Pozsgay, J.Stat.Mech. (2014) P06011

B. Pozsgay, J.Stat.Mech. (2011) P01011

TITLE AND NAME:

Brigitta Tóth PhD

AFFILIATION:
Institute for Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research, Hungarian Academy of Sciences and Department of Crop Production and Soil Science, Georgikon Faculty, University of Pannonia, Keszthely

LINK TO WEBPAGE:
http://mta-taki.hu/en/tagok/toth-brigitta

FIELD OF SCHOLARSHIP:
Agricultural sciences

BIOGRAPHICAL NOTE:

Brigitta Tóth is a senior soil scientist of the Institute for Soil Sciences and Agricultural Chemistry, Centre for Agricultural Research, Hungarian Academy of Sciences (ISSAC CAR HAS), Budapest and adjunct professor at the University of Pannonia (UP) in Keszthely, Hungary. She obtained her PhD in soil physics in 2011. Her main research focus is on obtaining information on soil hydraulic properties at local, regional and continental scale to improve our understanding on the role of soils in agricultural production and ecosystems services, and their influence on drought, excess inland water and erosion sensitivity.

DETAILS OF RESEARCH:

In her PhD research she described with mathematical formulas the relationship between simple soil characteristics and soil hydraulic properties. During her PhD studies she was a grant holder at the Politecnico di Milano (Italy), collaborating on joint research publications. She participated in the development of European Hydropedological Data Inventory (EU-HYDI), which was built as a collective effort of 29 institutes from 18 European countries. She was in the core group of coordinating establishment of database structure, data harmonization and description. She was the lead scientist in deriving soil hydraulic predictions for regional and continental scale applications in Europe. In collaboration with Melanie Weynants from the Joint Research Centre (JRC), the prediction functions have been implemented in a package called ‘euptf’, in the open source R software, which enables wider access to and easier implementation of the prediction methods. With the collaboration of ISSAC CAR HAS, UP, ISRIC-World Soil Information and JRC, she supervised the preparation of 3D soil hydraulic maps of Europe at 250 m resolution (EU-SoilHydroGrids). The freely accessible database provides soil hydrological information up to 2 m depth with full continental coverage, which enables hydrological, ecological, atmospherical, agricultural or other environmental modelling at continental and regional scales.

THREE KEY PUBLICATION REFERENCES:

Tóth, B., Weynants, M., Pásztor, L., Hengl, T. 2017. 3D Soil Hydraulic Database of Europe at 250 m resolution. Hydrological Processes. doi: 10.1002/hyp.11203.

Tóth, B., Weynants, M., Nemes, A., Makó, A., Bilas, G. and Tóth, G. 2015. New generation of hydraulic pedotransfer functions for Europe. European Journal of Soil Science. 66: 226–238.

Tóth, B., Makó, A., Guadagnini, A., Tóth, G. 2012. Water retention of salt affected soils: quantitative estimation using soil survey information. Arid Land Research and Management, 26. 103-121.

TITLE AND NAME:
Péter Vancsó PhD

AFFILIATION:
Institute for Technical Physics and Materials Science, Centre for Energy Research of Hungarian Academy of Sciences, Budapest

LINK TO WEBPAGE:
www.nanotechnology.hu

FIELD OF SCHOLARSHIP:
Engineering Science

BIOGRAPHICAL NOTE:

Péter Vancsó graduated in Physics at Eötvös Loránd University, Budapest in 2010. Between 2010-2015 he worked as an Assistant Research Fellow at the Institute for Technical Physics and Materials Science (MFA) in the group of Prof. László P. Biró. He received his Ph. D. in 2015 with a thesis on the electronic properties of graphene. Since 2016, Péter Vancsó has been a postdoctoral researcher at University of Namur, Belgium. In a group led by Prof. Philippe Lambin he is investigating electronic, magnetic and transport properties of different two-dimensional layered materials. He was a recipient of the Young Researcher Award of the Hungarian Academy of Sciences in 2016. Besides his scientific research, he is also active in the popularization of science among high school students.

DETAILS OF RESEARCH:

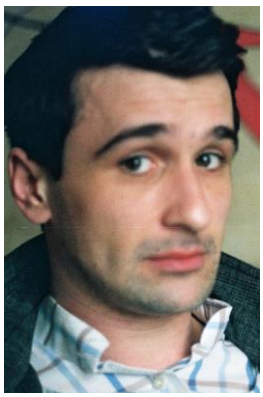
His main research interest is computational solid-state physics with direct relevance to nanoelectronics. In close collaboration with experimentalists, he is working on novel two-dimensional materials investigating their physical properties and their future potential for electronic applications. During his PhD, he has accomplished achievements in the calculation of transport properties in carbon nanostructures and graphene. Recently, based on detailed calculations, he laid the foundations of a novel nanoelectronic device concept based on graphene nanoribbons which can efficiently control both the charge and the spin signal in a simple three-terminal field effect transistor configuration. Nowadays, he extended his focus also towards novel two-dimensional materials, such MoS_2, revealing the major role of native defects in the electronic properties of MoS_2 based devices.

THREE KEY PUBLICATION REFERENCES:

P. Vancsó, I. Hagymási, L. Tapasztó, A magnetic phase-transition transistor with tunable spin polarization. **2D Materials** 4, 024008 (2017).

P. Vancsó, G. Z. Magda, J Pető, J.-Y. Noh, Y.-S. Kim, C. Hwang, L. P. Biró, L. Tapasztó, The intrinsic defect structure of exfoliated MoS_2 single layers revealed by Scanning Tunneling Microscopy. **Scientific Reports** 6, 29726 (2016).

G. Zs. Magda, X. Jin, I. Hagymási**, P. Vancsó**, Z. Osváth, P. Nemes-Incze, C. Hwang, L. P. Biró, L. Tapasztó, Room temperature magnetic order on zigzag edges of narrow graphene nanoribbons. **Nature** 514, 608-611 (2014).



TITLE AND NAME:
Deodáth Zuh PhD

AFFILIATION:
Hungarian Academy of Sciences, Research Centre for the Humanities, Institute of Philosophy

FIELD OF SCHOLARSHIP:
History of Philosophy, Phenomenology, Philosophy of Art

BIOGRAPHICAL NOTE:

I finished my PhD at the Eötvös Loránd University of Budapest and the Babeș-Bolyai University of Cluj with an investigation in Edmund Husserl's philosophy of knowledge and its beginnings in his Philosophy of Arithmetic and his seminal but still relevant studies on the logic of signs. Currently I work as a research fellow at the Hungarian Academy of Sciences. Due to my training in German language resp. German philsophy and my constantly growing interest in Austro-Hungarian intellectual history, in the last few years I have made progress in encompassing the partly uncharted territories of Hungarian pre-war intelligentsia. Notwithstanding my serious interest in the group of intellectuals around the young Georg Lukács and Béla Balázs, the very group that underwent serious research, not to mention the decade-long process of collecting their records, there is still enough work to do both in processing primary material and in re-evaluating the results of an established scholarship.

DETAILS OF RESEARCH:

In the meantime I work on a monograph which evaluates the life, work and reception of the 20th century Hungarian-born philosopher of art, Arnold Hauser (1892-1978). The work as a whole will be also a detailed account on last century Hungarian intellectual history. Taking cues from Hauser's still unprocessed personal archives I will try to argue for the thesis that the community that gave decisive impulses to the young Hauser was much more an intellectual incubator than a clear-cut circle of progressive intellectuals. This community let us think of it as the Sunday Circle, but the narrative about its shared general outlook was forged a few decades after it ceased to exist. If anything could have been learnt in this circle was the stunning proximity of concurrent or even contradictory ideas and not a certain mood to contemplate things. Hauser probably learnt here that a thinker's ideas are sociologically bound. But these sociological ties are pertaining to the idea that none of a scholar's theses can be perpetuated unless they are widely received and discussed. This applies mutatis mutandis to large portions of the history of art: they not only reflect a certain form of social embeddedness, but also a long history of how they resonate with different meanings and in different communities.

THREE KEY PUBLICATION REFERENCES:

2008 „How Do Categorial Representations Influence Everyday Intuition? On Husserl's Early Attempt To Grasp The Horizontal Structure of Consciousness" In: *Studia Universitatis Babes-Bolyai – Philosophia*. LIII/1–2, pp. 49–62.

2012 "Wogegen wandte sich Husserl 1891? Ein Beitrag zur neueren Rezeption des Verhältnisses von Husserl und Frege", in: *Husserl Studies* 28, pp. 95–120.

2015 Arnold Hauser and the Multilayer Theory of Knowledge", in: *Studies in East European Thought* 67 (1 - 2): pp. 41-59.