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BOOK OF ABSTRACTS



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COST Actions as a wide network of researchers and innovators across Europe

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¹Keywords

COST; interdisciplinarity; OECD fields; network.

Summary

The European Cooperation in Science and Technology (COST) is a funding organisation for the creation of research networks [1]. COST is an intergovernmental framework consisting at present of 38 Members and 1 Cooperating Member country. The networks projects are called *Actions* and approved projects are funded for four years with the average fund of 134,500 EUR per year. These networks offer an open space for collaboration among scientists across Europe (and beyond) and thereby give impetus to research advancements and innovation [1].

COST Association does not fund research itself but it funds collaboration activities (workshops, conferences, working group meetings, training schools, short-term scientific missions - STSM, and dissemination and communication activities). At present there are 1178 completed Actions, 213 running Actions and from the next month new 35 Actions will start their 4 year terms. As of 2018, approximately 45,000 researches has been involved in COST Actions. Only in that year 2,457 STSMs have been accomplished [2].

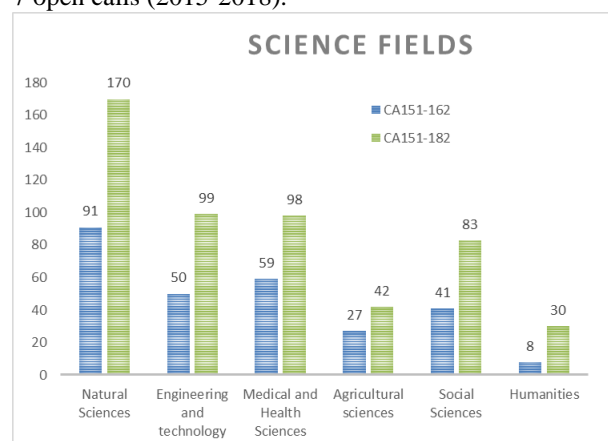
Different disciplines of the Actions are categorized as 6 OECD fields of science and technology: *i*) Natural sciences; *ii*) Engineering and technology; *iii*) Social sciences; *iv*) Medical and health sciences; *v*) Agricultural sciences; and *vi*) Humanities. One of the COST priorities is to foster interdisciplinary research for breakthrough science. During two calls for Action proposals approximately 50% of proposals required expertise in two or more fields. The distribution of the fields within the Open Calls 2018-1 and -2 is presented in Table 1 [3].

Main OECD Fields of Science and Technology	OC-2018-1	OC-2018-2
Natural sciences	25.8 %	25.9 %
Engineering and technology	22.4 %	24.1 %
Social sciences	20.9 %	20.8 %
Medical and health sciences	17.1 %	16.7 %
Agricultural sciences	5.4 %	6.7 %
Humanities	8.4 %	5.8 %

* The author is COST National Coordinator.

Involvement of Serbian researchers in COST Actions is constantly increasing so that country representation in COST Actions starting from 73 % in 2014 achieved 90 % in 2018. Also, leadership positions in COST Actions held by Serbian participants is steadily increasing, from 16 in 2014 to 29 in 2016 and even to 42 in 2018. Participation in network activities comprises 106 STSMs, 190 trainees and 16 trainers in 2018. The total budget received by Serbian participants hits almost 1 million euros [4].

Distribution of OECD fields among Serbian research community is presented in Figure 1. On the graph the first columns in blue represent data from the 4 open calls (2015-2016) while the second columns in green are those from all 7 open calls (2015-2018).



Many other statistical data is available for considerations, such as participation of Inclusiveness Target Countries (ITC), gender balance, number of ECI - Early Career Investigators, distributions of marks of evaluated proposals, etc. All data and knowledge accumulated within COST demonstrates the complexity of research network in Europe.

References

1. About COST <https://www.cost.eu/who-we-are/about-cost/>.
2. The figures are taken from the presentation of Director of the COST Association, Dr. Ronald de Bruin, at the COST Info-day in Belgrade on 28th March 2019.
3. Reports for the Committee of Senior Officials prepared by Science Operations Open Call Scientific Managements in (2018) and (2019).
4. Country factsheet for 2018 on the COST members' page in the website (2019) <https://www.cost.eu/who-we-are/members/RS/>

DAY 1 (October 15)

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09:30 - 10:00	REGISTRATION
10:00 – 10:20	OPENING Velimir Ilić – Introduction to TINKOS 2019>
10:20 – 11:30	INFORMATION MEASURES
10:20 - 10:50	Jan Korbel CLASSIFICATION OF GENERALIZED ENTROPIES AND APPLICATIONS TO COMPLEX SYSTEMS
10:50 - 11:10	Slavko Simić ON THE SYMMETRIZED S-DIVERGENCE
11:10 - 11:30	Zlata Tabachova, Petr Jizba RENYI ENTROPY TRANSFER IN DETERMINISTIC CHAOTIC SYSTEM
11:30 – 11:50	Coffee Break
11:50 – 13:40	QUANTUM AND NONEQUILIBRIUM SYSTEMS
11:50 - 12:20	Édgar Roldán MARTINGALE THEORY OF STOCHASTIC THERMODYNAMICS
12:20 - 12:50	Gonzalo Manzano Paule, Rosario Fazio, Édgar Roldán QUANTUM MARTINGALE THEORY AND ENTROPY PRODUCTION
12:50 - 13:20	Igor Petrović, Jasmina Jeknić-Dugić, Momir Arsenijević, Miroljub Dugić ON THE STABILITY OF THE QUANTUM BROWNIAN ROTATOR
13:20 - 13:40	Miroljub Dugić, Jasmina Jeknic-Dugić, Momir Arsenijević ‘DOES ‘THE OLD MAN’ PLAY DICE?’
13:40 - 15.10	Lunch Break
15:10 – 16:30	SIGNAL COMPLEXITY
15:10 - 15:40	Milos Milovanović, Bojan M. Tomić A STOCHASTIC THEORY OF WAVELETS
15:40 - 16:10	Jonatan Lerga LOCAL ENTROPY MEASURES WITH APPLICATIONS IN BIOMEDICINE
16:10 - 16:30	Nicolleta Saulig COMPLEXITY ESTIMATION OF NONSTATIONARY SIGNALS BY MEANS OF THE RÉNYI ENTROPY
16:30 – 16:50	Coffee Break
16:50 – 17:50	NONLINEAR DYNAMICS
16:50 – 17:20	Vladimir Jaćimović GEOMETRY OF THE KURAMOTO MODEL AND ITS EXTENSIONS: TOWARDS THE THEORY OF COLLECTIVE MOTIONS ON MANIFOLDS
17:20 – 17:50	Igor Franović MACROSCOPIC DYNAMICS IN HETEROGENEOUS ASSEMBLIES OF EXCITABLE AND OSCILLATORY UNITS
17:50 – 18:10	GUEST SECTION: SERBIAN NATIONAL COST COORDINATOR
17:50 – 18:10	Bratislav Marinković COST ACTIONS AS A WIDE NETWORK

	OF RESEARCHERS AND INNOVATORS ACROSS EUROPE
18:10 – 18:30	OPEN DISCUSSION
20:30	CONFERENCE DINNER

DAY 2 (October 16)

09:00 – 10:10	INFORMATION THEORY
09:00 – 09:30	Bane Vasić GRAPH EXPANSION-CONTRACTION METHOD FOR CALCULATING ERROR FLOOR OF LOW-DENSITY PARITY CHECK CODES
09:30 – 9:50	Mohamed Yaoumi, Elsa Dupraz, Francois Leduc-Primeau, Frederic Guilloud ENERGY-EFFICIENT PROTOGRAPH-BASED LDPC CODES
09:50 – 10:10	Dragana Bajović, Jose M. F. Moura, Dejan Vukobratović DETECTION OF RANDOM WALKS ON GENERIC TOPOLOGIES: OPTIMAL PERFORMANCE CHARACTERIZATION VIA CONVEX OPTIMIZATION
10:10 – 10:30	Coffee Break
10:30 – 11:30	MODELS OF COLLECTIVE BEHAVIOR
10:30 – 11:00	Aleksandra Alorić MARKET FRAGMENTATION AND MARKET CONSOLIDATION AS EMERGENT PROPERTIES IN SYSTEMS OF ADAPTIVE TRADERS AND DOUBLE AUCTION MARKETS
11:00 – 11:30	Simon Schweighofer A BALANCE MODEL OF OPINION HYPERPOLARIZATION
11:30 – 11:50	Coffee Break
11:50 – 13:20	MACHINE LEARNING
11:50 – 12:20	Elsa Dupraz ENERGY-EFFICIENT MACHINE LEARNING ALGORITHMS
12:20 – 12:40	Jelena Milovanović, Branimir Todorović USING DEEP NEURAL NETWORKS FOR INTERNAL BANKING FRAUD DETECTION
12:40 – 13:00	Ivan Petrović, Bratislav P. Marinković, Stefan Ivanović, Violeta Petrović MACHINE VS RULE-BASED LEARNING IN PHYSICS: POSSIBILITIES AND ADVANTAGES
13:00 – 13:30	Michał Bejger APPLICATIONS OF MACHINE LEARNING IN GRAVITATIONAL-WAVE ASTROPHYSICS
13:30 – 14:50	Lunch Break
14:50 – 16:10	COMPLEX NETWORKS
14:50 – 15:20	Ljupčo Kocarev BAYESIAN CONSENSUS CLUSTERING IN NETWORKS
15:20 – 15:50	Slobodan Maletić TOPOLOGICAL ANALYSIS OF COMPLEX DATASETS: TOWARD EXHAUSTIVE RECONSTRUCTION OF RELATIONSHIPS
15:50 – 16:10	Dragorad Milovanović, Zoran Bojković OPTIMAL DEPLOYMENT OF 5G NETWORK SLICING BASED ON COMPLEX NETWORK THEORY
16:10 – 16:30	Coffee Break
16:30 – 17:40	BIONFORMATION SYSTEMS

16:30 – 17:00	Natasa Mišić HIERARCHICAL STRUCTURE OF THE GENETIC CODE
17:00 – 17:20	Francesca Schonsberg GARDNER APPROACH FOR THRESHOLD LINEAR UNITS TO UNDERSTAND MEMORY IN THE BRAIN
17:20 – 17:40	Gordana Simić Medić COMPLEXITY OF CREATING ART
17:40 - 18:00	CLOSING