

# Computability in Europe 2019

	Monday	Tuesday	Wednesday	Thursday	Friday
9.00am	Invited Talk: Linda Westrick	Invited Talk: Sonja Smets	Invited Talk: Ursula Martin	Invited Talk: Felipe Cucker	Contributed 4
9.30am					
10.00am	Coffee	Coffee	Coffee	Coffee	Coffee
10.30am	SS1a	Tutorial 1a: Assia Mahboubi	SS2a	Tutorial 1b: Assia Mahboubi	SS3a
11.00am					
11.30am					
12.00pm	Lunch	Lunch	Lunch	Lunch	Lunch
12.30pm					
1.00pm					
1.30pm	SS1b	Tutorial 2a: Markus Holzer	SS2b	Tutorial 2b: Markus Holzer	SS3b
2.00pm					
2.30pm					
3.00pm	Coffee	Coffee	Coffee	Coffee	
3.30pm	Contributed 1	Women in Computability Workshop	Contributed 2	Contributed 3	
4.00pm					
4.30pm					
5.00pm	Reception			General Assembly	
5.30pm					
6.00pm					
6.30pm					
7.00pm			Banquet in Durham Castle		

Felip Cucker	Computing the Homology of Semialgebraic Sets
Ursula Martin	Journeys in Mathematical Landscapes: Genius or Craft?
Sonja Smets	Logic and Computation of Social Behavior
Linda Westrick	Climbing the Hierarchy of Completely Positive Entropy in Two-Dimensional Shifts of Finite Type

Assia Mahboubi	Machine Checked Mathematics
Markus Holzer	Non-recursive Trade-Offs Are Almost Everywhere

## Special Sessions (two in parallel)

Monday (SS1)	Transfinite Computations Probabilistic Programming and Higher-Order Computation
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Wednesday (SS2)	History and Philosophy of Computing Smoothed and Probabilistic Analysis of Algorithms
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Friday (SS3)	Computational Neuroscience Lowness Notions in Computability
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## Contributed Talks (three in parallel)

See next page for details.

Coffee breaks, lunches & reception take place in the Atrium (Engineering).

**Monday****Invited Talk****E005**

9.00am

Linda Brown Westrick

Climbing the Hierarchy of Completely Positive Entropy in Two-Dimensional Shifts of Finite Type

**Monday****Special Sessions****E005****Transfinite Computations**

10.30am

Merlin Carl

Ordinal Regularity

11.15am

Lorenzo Galeotti

Surreal Blum-Shub-Smale Machines

1.30pm

Philip Welch

Higher Type Recursion for Transfinite Machine Theory

2.15pm

Benjamin Rin

New Directions in Transfinite Complexity

**E240****Probabilistic Programming and Higher-Order Computation**

10.30am

Thomas Ehrhard

Stability in a Probabilistic Setting

11.15am

Cameron Freer

Computable Representations of Exchangeable Data

1.30pm

Joost-Pieter Katoen

Quantitative Separation Logic

2.15pm

Sam Staton

Semantic Models of Probability with Higher Order Functions

**Monday****Contributed Talks****E005****Computability**

3.30pm

Nikolay Bazhenov, Manat Mustafa and Sergey Ospichev

Bounded reducibility for computable numberings

3.55pm

Iskander Kalimullin, Russell Miller and Hans Schoutens

Degree Spectra for Transcendence in Fields

4.20pm

Xizhong Zheng and Klaus Ambos-Spies

On the Differences and Sums of Strongly Computably Enumerable Real Numbers

4.45pm

R. Dimitrov, V. Harizanov, A. Morozov, P. Shafer, A. Soskova, S. Vatev

Cohesive Powers of Linear Orders

**E240****Computable Analysis**

3.30pm

Hyunwoo Lee

Is Brownian Motion Computable?

3.55pm

Zvonko Iljazović

Computable type of certain polyhedra

4.20pm

Arno Pauly

Luzin's (N) and randomness reflection

4.45pm

Matthew Ye

First steps towards computable frame theory

**E360****Computation to Graphs**

3.30pm

Julien Cervelle and Patrick Cegielski

Study of step-wise simulation between ASMs

3.55pm

Michał Wroclawski

Representations of Natural Numbers and Computability of Various Functions

4.20pm

L. Beaudou, F. Foucaud, F. Madelaine, L. Nourine and G. Richard

Complexity of regular path query homomorphisms

4.45pm

András Pongrácz

Push and pull protocols on finite graphs

5.10-6.45pm

**Reception in Atrium (Engineering)**

**Tuesday**

**Invited Talk**

**E005**

9.00am

Sonja Smets

Logic and Computation of Social Behavior

**Tuesday**

**Tutorial**

**E005**

10.30am

Assia Mahboubi

Machine Checked Mathematics

**Tuesday**

**Tutorial**

**E005**

1.30pm

Markus Holzer

Non-recursive Trade-Offs Are Almost Everywhere

**Tuesday**

**Women in Computability**

**E005**

3.30pm

Erika Ábrahám

3.55pm

Ursula Martin

4.20pm

Sara Uckelman

4.45pm

Discussion

**Wednesday Invited Talk**

**E005**

9.00am	Ursula Martin	Journeys in Mathematical Landscapes: Genius or Craft?
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**Wednesday Special Sessions**

**E005 Smoothed and Probabilistic Analysis of Algorithms**

10.30am	Sophie Huiberts	A Friendly Smoothed Analysis of the Simplex Method
11.15am	Clemens Rösner	The Smoothed Number of Pareto-optimal Solutions in Non-integer Bicriteria Optimization
1.30pm	Stefan Klootwijk	Probabilistic Analysis of Facility Location on Random Shortest Path Metrics
2.15pm	Sebastian Wild	Dual-Pivot Quicksort and Beyond: An Analysis-of-Algorithms Perspective on Multiway Quicksort

**E240 History and Philosophy of Computing (Special Session + Contributed)**

10.30am	Michael Jackson	The Right-Hand Side Problem in Cyber-Physical Systems
11.15am	Tony Hoare	Applied Logic and Programming Languages
1.30pm	Raymond Turner	Correctness, Explanation and Intention
2.15pm	Andrew Aberdein	Phylomemetics of a Mathematical Folk Tale
2.40pm	Laura Crosilla	Poincare, Weyl and a predicative concept of set

**Wednesday Contributed Talks**

**E005 Computability**

3.30pm	Jean-Yves Moyen and Jakob Grue Simonsen	More Intensional Versions of Rice's Theorem
3.55pm	Lorenzo Carlucci, Leonardo Mainardi and Michael Rathjen	A note on the ordinal of $RCA_0 + WO(\sigma)$
4.20pm	Shaoyi Wang, Guohua Wu and Mars Yamaleev	The d.r.e wtt-degrees are dense
4.45pm	Nikolay Bazhenov, Hristo Ganchev and Stefan Vatev	Effective embeddings for pairs of structures

**E240 History and Philosophy of Computing et al.**

3.30pm	Mate Szabo	Kalmar's Argument for the Independence of Computer Science
3.55pm	Jiri Wiedermann and Jan van Leeuwen	Finite State Machines with Feedback: An Architecture Supporting Minimal Machine Consciousness
4.20pm	Vasco Brattka	Weihrauch goes Brouwerian
4.45pm	Paul Bell and Igor Potapov	Towards Uniform Online Spherical Tessellations

**E360 Graphs**

3.30pm	Niels Gruettemeier, Christian Komusiewicz, Jannik Schestag and Frank Sommer	Destroying Bicolored P3s by Deleting Few Edges
3.55pm	Konrad K. Dabrowski	Graph Isomorphism for $(H_1, H_2)$ -free Graphs: An Almost Complete Dichotomy
4.20pm	Florin Manea	Graph and String Parameters: Connections Between Pathwidth, Cutwidth and the Locality Number
4.45pm	Charles Semple	Looking for trees in phylogenetic networks

7.00pm **Conference Banquet in Durham Castle**

**Thursday**      **Invited Talk**

**E005**

9.00am      Felipe Cucker      Computing the Homology of Semialgebraic Sets

**Thursday**      **Tutorial**

**E005**

10.30am      Assia Mahboubi      Machine Checked Mathematics

**Thursday**      **Tutorial**

**E005**

1.30pm      Markus Holzer      Non-recursive Trade-Offs Are Almost Everywhere

**Thursday**      **Contributed Talks**

**E005**      **Computability**

3.30pm      Bruno Durand and Gregory Lafitte      An algorithmic approach to characterizations of admissibles  
3.55pm      Dino Rossegger      The complexity of non-trivial homomorphisms between torsion-free abelian groups  
4.20pm      Luca San Mauro      Punctual equivalence relations and their punctual complexity  
4.45pm      Péter Battyányi      Feasibility in Nonstandard Heyting Arithmetic

**E240**      **Quantum**

3.30pm      Viv Kendon      Continuous-time quantum computing  
3.55pm      Nicholas Chancellor      Novel Ways of Using Quantum Annealing  
4.20pm      Florian Kammüller      Formalizing Probabilistic Quantum Security Protocols in the Isabelle Infrastructure Framework  
4.45pm      Michael Fiske      Quantum Random Self-Modifiable Computation

**E360**      **Reverse Mathematics + Ramsey + Strings**

3.30pm      Sam Sanders      Nets and Reverse Mathematics: initial results  
3.55pm      Marta Fiori Carones      Reverse mathematics of a theorem about posets of finite width  
4.20pm      Manlio Valenti      The open and clopen Ramsey theorems in the Weihrauch lattice  
4.45pm      Rosalba Zizza      Inverse Lyndon words and Inverse Lyndon factorizations of words

**E005**

5.10pm      General Assembly

**Friday**      **Contributed Talks**

**E005**      **Computability + Reverse Mathematics**

9.00am	Iosif Petrakis	Borel and Baire sets in Bishop spaces
9.25am	Keita Yokoyama	Finitary infinite pigeonhole principle and Ramsey's theorem in reverse mathematics

**E240**      **Computation**

9.00am	Florian Bridoux, Richard Adrien, Kavin Perrot and Nicolas Durbec	Complexity and Fixed Points in Boolean Networks
9.25am	Daniil Musatov and Ruslan Ishkuvatov	On approximate uncomputability of the Kolmogorov complexity function

**Friday**      **Special Sessions**

**E005**      **Computational Neuroscience**

10.30am	Ulrik Beierholm	Learning to perceive and act in a stochastic environment
11.15am	V Anne Smith	Brains and Bayes Nets: Inferring Neural Information Flow
1.30pm	Evelyne Sernagor	Multielectrode-array applications to investigate retinal function in health and disease
2.15pm	Netta Cohen	

**E240**      **Lowness Notions in Computability**

10.30am	Kenshi Miyabe	Uniform Relativization
11.15am	Benoit Monin	Lowness of the Pigeonhole Principle
1.30pm	Keng Meng Selwyn Ng	The Computational Strength of Points in Function Spaces
2.15pm	Don Stull	Effective Dimension of Planar Lines and Fractal Geometry