Second Mexican School/Conference on Topological Data Analysis and Related Topics

Juriquilla, Querétaro, México
December 7-11, 2015

Program

Monday, December 7, 2015

08.30-08.50 *Registration.*

08.50-08.55. *Welcoming remarks.*

Session I. Chair: José C. Gómez L., CIMAT, Guanajuato, México.

09.00-09.50. *Topology and the Big Data problem.*
Gunnar Carlsson, Ayasdi and Stanford University, USA.

10.00-10.50. *Alpha shapes and incremental Betti numbers.*
Herbert Edelsbrunner, Institute of Science and Technology, Austria.

11.00-11.30. **Coffee break.**

Session II. Chair: Jesus González, Cinvestav, D.F., México.

11.30-12.20. *Topology of large random spaces I.*
Michael Farber, Queen Mary University of London, UK.

12.30-13.20. *An overview of distributed computing through combinatorial topology.*
Sergio Rajsbaum, Universidad Nacional Autónoma de México, México.

13.30-15.30. **Lunch.**

Session III. Chair: Sergio Rajsbaum, UNAM, D.F., México.

15.30-16.20. *Distributed computing through combinatorial topology I.*
Maurice Herlihy, Brown University, USA.

16.30-17.20. *Induced matchings and the algebraic stability of persistence barcodes.*
Ulrich Bauer, Technical University of Munich, Germany.

Tuesday, December 8th 2015

Session IV. Chair: Miguel Nakamura, CIMAT, Guanajuato, México.

09.00-09.50. *Statistical topological data analysis.*
Peter Bubenik, University of Florida, USA.

10.00-10.50. *Persistent homology and two algorithms.*
Herbert Edelsbrunner, Institute of Science and Technology, Austria.

11.00-11.30. **Coffee break.**

Session V. Chair: Gelasio Salazar, UASLP, San Luis Potosí, México.

11.30-12.20. *Topology of large random spaces II.*
Michael Farber, Queen Mary University of London, UK.

12.30-13.20. *Discrete Morse theory with applications to data I.*
Neza Mramor Kosta, University of Ljubljana, Slovenia.

13.30-15.30. **Lunch.**

Session VI. Chair: Rogelio Hasimoto, CIMAT, Guanajuato, México.

15.30-16.20. *Distributed computing through combinatorial topology II.*
Maurice Herlihy, Brown University, USA.

16.30-17.20. *Simply connected 2-stratifolds.*
Wolfgang Heil, Florida State University.

Wednesday, December 9, 2015

Session VII. Chair: Luis Montejano, IMATE-UNAM, Querétaro, México.

09.00-09.50. *Topological data analysis and machine learning.*
Peter Bubenik, University of Florida, USA.

10.00-10.50. *Stability and intrinsic volumes.*
Herbert Edelsbrunner, Institute of Science and Technology, Austria.

11.00-11.30. **Coffee break.**

Session VIII. Chair: Noé Bárcenas, CCM-UNAM, Morelia, México.

11.30-12.20. *Topology of large random spaces III.*
Michael Farber, Queen Mary University of London, UK.

12.30-13.20. *Discrete Morse theory with applications to data II.*
Neza Mramor Kosta, University of Ljubljana, Slovenia.

13.30-15.30. **Lunch.**

Session IX. Chair: Octavio Arizmendi, CIMAT, Guanajuato, México.

15.30-16.20. *Distributed computing through combinatorial topology III.*
Maurice Herlihy, Brown University, USA.

16.30-17.20. *Subsampling methods and Wasserstein stability for persistent homology.*
Frederic Chazal, INRIA Saclay, France.

Thursday, December 10, 2015

Session X. Chair: Rolando Biscay, CIMAT, Guanajuato, México.

09.00-09.50. *Generalized persistence.*
Peter Bubenik, University of Florida, USA.

10.00-10.50. *An observer-oriented approach to topological data analysis. Part I: From comparing subsets of R^n to studying metric spaces of functions.*
Patrizio Frosini, University of Bologna, Italy.

11.00-11.30. **Coffee break.**

Session XI. Chair: Aldo Guzmán, Cinvestav, D.F., México.

11.30-12.20. *Homotopy theory for data sets.*
Antonio Rieser, CONACYT-CIMAT, México.

12.30-13.20. *Discrete Morse theory with applications to data III.*
Neza Mramor Kosta, University of Ljubljana, Slovenia.

13.30-15.30. **Lunch.**

Session XII. Chair: Abraham Martín del Campo, CONACYT-CIMAT, Guanajuato, México.

15.30-16.20. *Distributed computing through combinatorial topology IV.*
Maurice Herlihy, Brown University, USA.

16.30-17.20. *Topological data analysis for investigation of dynamics and networks.*
Heather Harrington, University of Oxford, UK.

Friday, December 11, 2015

Session XIII. Chair: Déborah Oliveros, IMATE-UNAM, Querétaro, México.

09.00-09.50. *A roadmap for the computation of persistent homology.*
Nina Otter, University of Oxford, UK.

10.00-10.50. *An observer-oriented approach to topological data analysis. Part II: The algebra* of *group invariant non-expansive operators and its application in the project GIPHOD – Group Invariant Persistent Homology Online Demonstrator.*
Patrizio Frosini, University of Bologna, Italy.

11.00-11.30. **Coffee break.**

Session XIV. Chair: Víctor Pérez-Abreu, CIMAT, Guanajuato, México.

11.30-12.20. *Computing independent sets in an asynchronous environment.*
Armando Castañeda, Universidad Nacional Autónoma de México, México.

12.30-13.20. *Direct topology –Concurrency theory.*
Lisbeth Fajstrup, Aalborg University, Denmark.

13.30-15.30. **Lunch.**

Acronym guide for Mexican sponsoring institutions

CIMAT: Centro de Investigación en Matemáticas.

CINVESTAV: Centro de Investigación y de Estudios Avanzados.

CONACYT: Consejo Nacional de Ciencia y Tecnología.

SMM: Sociedad Matemática Mexicana.

UASLP: Universidad Autónoma de San Luis Potosí.

UNAM: Universidad Nacional Autónoma de México.