Dynamical systems and brain-inspired information processing
November 2-3

November 2, Monday

- 8:30-9:15: Coffee/Breakfast/Registration
- 9:15-9:30: Welcoming remarks
- 9:30-9:50: Serge Massar (Université Libre de Bruxelles): Photonic Reservoir Computing
- 9:55-10:15: Ingo Fischer (CSIC, Universitat de les Illes Balears): Towards reservoir computing using Autonomous Boolean Networks
- 10:20-10:40: Laurent Larger (FEMTO-ST, Besançon): Ultra-fast electro-optic delay reservoir
- 10:45-11:15: Coffee break
- 11:15-11:35: Joni Dambre (Universiteit Gent): Using mechanical bodies as a reservoir: applications for embodiment of motor control
- 11:40-12:00: Julie Grollier (CNRS/Thales): Magnetic nano-devices for bio-inspired computing
- 12:05-12:25: Gordon Pipa (Universität Osnabrück): TBA

LUNCH BREAK

- 14:30-14:50: Damien Querlioz (Université Paris-Sud): Revisiting Memory for Bioinspired Systems
- 14:55-15:15: Andrew Katumba (Universiteit Gent): Photonic reservoir computing for telecom applications
- 15:20-15:40: Michiel Hermans (Université Libre de Bruxelles): Physically Implemented Backpropagation: Let's Just Train the Whole Thing!
- 15:45-16:05: Quenting Vinckier (Université Libre de Bruxelles): High-performance photonic reservoir computer based on a coherently driven passive cavity
- 16:10-16:40: Coffee break
- 16:40-17:00: Julián Bueno (CSIC, Universitat de les Illes Balears): Consistency and memory properties of an all-optical information processing scheme
- 17:05-17:25: Simon Morando (FEMTO-ST, Belfort): Diagnostic and Pronostic of a proton exchange membrane fuel cell using reservoir computing approach
- 17:30-17:55: Damir Vodenicarevic (Université Paris-Sud) : Associative memory with nanoscale oscillators

Conference dinner
19:30
Brasserie du Commerce, 31 rue de Granges

November 3, Tuesday

Morning session

- 8:30-9:30: Coffee/Breakfast
- 9:30-9:50: Simon Thorpe (CNRS, Université de Toulouse III): Biologically plausible memory mechanisms and convolutional neural networks
- 9:55-10:15: Stéphane Chrétien (National Physical Laboratory, London): Tensor methods for neural networks
- 10:20-10:40: Juan-Pablo Ortega (CNRS, Laboratoire de Mathématiques de Besançon): Time-delay reservoir computers: nonlinear stability of functional differential systems and optimal nonlinear information processing capacity.
- 10:45-11:15: Coffee break
- 11:15-11:35: Lyudmila Grigoryeva (Universität Konstanz): Capacity of time-delay reservoir computers in the forecasting, filtering, reconstruction, and parallel processing of stochastic stationary and multidimensional signals
- 11:40-12:00: Luis Pesquera (CSIC, Instituto de Física de Cantabria): Impact of the system response time on the information processing capacity of delay-based photonic reservoir computers
- 12:05-12:25: Thomas Erneux (Université Libre de Bruxelles): Slow-fast systems with delay

LUNCH BREAK

Afternoon session

- 14:30-14:50: Michel Salomon (FEMTO-ST, Besançon): Parallelization and optimization of the Neuromorphic simulation code and application on the MNIST problem
- 14:55-15:15: Sylvain Barbay (LPN-CNRS, Marcoussis): Neuromimetic properties of a micropillar laser with saturable absorber
- 15:20-15:40: Bruno Garbin (Institut Nonlinéaire de Nice): An optical memory for spike timing patterns
- 15:45-16:05: Piotr Antonik (Université Libre de Bruxelles): Online training of a photonic reservoir computer
- 16:10-16:40: Coffee break
- 16:40-17:00: Jacob Torrejon (CNRS/Thales): Towards reservoir computing with spin-torque nano-oscillators
- 17:05-17:25: Lars Keuninckx (Vrije Universiteit Brussel): Monostable multivibrators: a novel class of artificial neuron