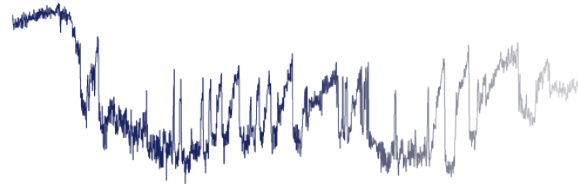# Critical Transitions in Complex Systems

Mathematical theory and applications

1st CRITICS Workshop and Summer School, Kulhuse, Denmark

PRELIMINARY PROGRAMME

August 23, 2016

Sunday 4 September	
9:00-19:00	Arrivals and reception
19:00-21:00	Dinner

Monday 5 September		
9:00-9:45	*Henk Dijkstra*	TBA
9:45-10:30	*Sebastian Bathiany*	On the possibility and predictability of rapid Arctic winter sea-ice loss
10:30-11:00	Coffee break	
11:00-11:25	*Kevin Bulthuis*	Instability and abrupt changes in marine ice sheet behaviour
11:25-11:50	*Deniz Eroglu*	A solar variability driven monsoon seesaw: switching relationships of the Holocene East Asian-Australian summer monsoons
11:50-12:30	Discussion time	
12:30-14:00	Lunch	
14:00-14:45	*Egbert van Nes*	Overview of applications of resilience indicators
14:45-15:10	*Martin Rypdal*	Early-warning signals for tipping points in strongly driven systems with many characteristic time scales
15:10-15:30	Coffee break	
15:30-16:30		Short presentation of posters
16:30-19:00		Poster session
19:00-20:00	Dinner	

Tuesday 6 September		
9:00-9:40	*Manfred Mudelsee*	Critical Statistical Tools for Analysing Critical Transitions
9:40-10:05	*Boumediene Hamzi*	Kernel Methods for Seizure Detection
10:05-10:35	Coffee break	
10:35-11:20	*Peter Imkeller*	Model selection for paleo-climatic time series: stable and fractional noise
11:20-11:45	*Frank Kwasniok*	Quantifying the likelihood of meridional overturning circulation collapse using non-stationary data-driven modelling
12:00-13:00	Lunch	
13:00-20:00		Excursion with conference dinner

Wednesday 7 September		
9:00-9:45	*Martin Rasmussen*	Bifurcations of set-valued and random dynamical systems
9:45-10:10	*Maximilian Engel*	Bifurcation Analysis of a Stochastically Driven Limit Cycle
10:10-10:50	*Ilya Pavlyukevich*	Metastability, stochastic resonance, and heavy tails
10:50-11:15	Coffee break	
11:15-12:00	*Tobias Jäger*	TBA
12:00-12:40	*Christian Pötzsche*	Nonautonomous Bifurcations: The Deterministic Case
12:40-13:00	Discussion time	
13:00-15:15	Lunch	
14:00-14:30	CRITICS Students meeting	CRTICS Students only
14:30-15:15	Steering committee meeting	CRITICS steering committee only
15:15-16:00	*Anna Maria Cherubini*	The stochastic resonance as a periodic random dynamical system
16:00-16:25	*Yuzuru Sato*	Anomalous diffusion in random dynamical systems
16:25-16:45	Coffee break	
16:45-17:30	*Michel Crucifix*	From conceptual to GCMs: The road to synthesis?
17:30-17:55	*Anna von der Heydt*	State-dependence of climate sensitivity: Attractor constraints and palaeoclimate regimes
17:55-18:25	*Peter Ditlevsen*	TBA
19:00-20:00	Dinner	

Thursday 8 September

9:00-9:45	*Rafael Obaya*	Pullback, forward and chaotic dynamics in non-autonomous linear dissipative equation
9:45-10:25	*Carmen Núñez*	The Yakubovich frequency theorem
10:25-11:00	Coffee break	
11:00-11:25	*Iacopo Paolo Longo*	Topological Dynamics for non-autonomous differential equations of Carathodory type with applications
11:25-11:50	*Ismael Maroto Camarena*	Exponential stability for nonautonomous functional differential equations with state dependent delay. Applications to neural networks
11:50-12:30	Discussion time	
12:30-14:00	Lunch	
14:00-14:45	*Anthony Quas*	Impediments to mixing in forced dynamical systems
14:45-15:30	*Mary Silber*	Vegetation patterns in mathematical models, and vegetation patterns in the Horn of Africa
15:30-15:50	Coffee break	
15:50-16:35	*Keith Briggs*	Phase transitions in communications systems
16:35-17:00	*Erik Bollt*	Information Flow and Information Fragility as a Pre-Warning of Transitions in Complex Systems
17:00-18:30	*Special Workshop session*	TBA
19:00-20:00	Dinner	

Friday 9 September

9:00-9:45	*Peter Ashwin*	Critical transitions and pullback attractors
9:45-10:30	*Sebastian Wieczorek*	TBA
10:30-11:00	Coffee break	
11:00-11:40	*Christian Kühn*	Critical transitions in multiscale dynamics
11:40-12:10	*Jeroen Lamb*	TBA
13:00-14:30	Lunch/Departure	