Day 1 – Wednesday, November 20

07:45-08:20	**Registration**	
08:20-08:30	**Opening**	

	Session 1 Room Lisbonne	Chair: Pierre Villon

08:30-09:00	**Charbel Farhat**	
	Enablement of Nonlinear Multiscale Modeling: In-Situ Adaptive vs. Coupon Test Analogy Trainings and Reduced-Order Bases vs. Neural Networks	
09:00-09:30	**Peter Benner**	
	Realization-independent Reduced-Order Modeling of Dynamical Systems	
09:30-10:00	**Albert Cohen**	
	Reduced modeling for manifold sensing	
10:00-10:30	**Pierre Ladevèze**	
	Model order reduction for nonlinear problems involving complex time-varying loadings	
10:30-11:00	**Coffee break**	

	Session 2 Room Lisbonne	Chair: Andrea Manzoni

11:00-11:30	**Francisco Chinesta**	
	Advances in multi-scale, multi-domain and data-based PGD	
11:30-12:00	**David Ryckelynck**	
	Computer vision for reduced-order modeling of macroscopic mechanical tests	
12:00-12:30	**Anthony Nouy**	
	Approximation and learning with tree tensor networks	
12:30-13:00	**Wim Desmet**	
	Model order reduction techniques to enable digital twins of high-dynamic mechatronic systems	
13:00-14:15	**Lunch**	

	Session 3 Room Lisbonne Chair: Kathrin Smetana	Session 4 Room Berlin Chair: Ludovic Chamoin
14:15-14:45	**Samuele Rubino** Numerical stabilization for the violation of the LBB condition in POD-ROM	**Frédéric Legoll** Certified computations with PGD model reduction for multiscale problems
14:45-15:15	**Abdallah El Hamidi** A complete proof of the convergence of alternating minimization in PGD methods	**Kenan Kergrene** A posteriori error estimation and adaptivity for a goal-oriented PGD method
15:15-15:45	**Antonio Falco** Topological Methods in Model Reduction	**Chady Ghnatios** Non-intrusive MOR technique for real time simulation of industrial applications
15:45-16:15	**Coffee break**	

	Session 5 Room Lisbonne Chair: Anthony Gravouil	Session 6 Room Berlin Chair: Antonio Falco
16:15-16:45	**Piotr Breitkopf** Incremental POD and Custom Integration Schemes for Hyper-reduced nonlinear dynamics	**Ludovic Chamoin** Real-time stochastic data assimilation using PGD: application to damageable structures
16:45-17:15	**Pierre-Alain Boucard** Multi-fidelity metamodeling using reduced order models	**Olga Mula** Reconstruction of blood flows with Doppler ultrasound images

	Poster session Room Lisbonne	Chair: Viriginie Ehrlacher, David Néron
17:30-18:15	**Virginie Ehrlacher, David Néron** Presentation of posters	
18:30-20:30	Wine and Cheese evening and discussions around posters	

Day 2 – Thursday, November 21

	Session 7 Room Lisbonne	Chair: Adnan Ibrahimbegovic

08:30-09:00	**Hermann Matthies**	
	Analysis of Stochastic Parameterised Reduced Order Methods	
09:00-09:30	**David Néron**	
	Parameter-multiscale PGD for high dimensional parametric spaces	
09:30-10:00	**Antonio Huerta**	
	Generalized solutions (PGD-based Computational Vademecums) for parametric studies in industrial CFD	
10:00-10:30	**Yvon Maday**	
	Data assimilation with PBDW approach for real time prediction of evolution phenomenon	
10:30-11:00	**Coffee break**	

	Session 8 Room Lisbonne Chair: Florian De Vuyst	Session 9 Room Berlin Chair: Pierre-Alain Boucard
11:00-11:30	**Adnan Ibrahimbegovic** Scale coarsening model reduction for failure mechanics of concrete composites: meso-scale to stochastic macro-scale transition	**Jean-Louis Duval** From Non-Intrusive model order reduction to advanced real-time engineering
11:30-12:00	**Mathilde Chevreuil** Learning in tree-based tensor formats for uncertainty quantification	**Michel Rochette** Industrial and Medical Digital Twins powered by Reduced Order Modelling
12:00-12:30	**Kathrin Smetana** Randomized Model Order Reduction	**Jean Ragusa** Application of Proper Generalized Decomposition to Neutron Governing Laws
12:30-13:00	**Damiano Lombardi** An adaptive hierarchical local HOSVD method	**Jean-François Ganghoffer** Symmetry analysis and equivalence transformations in constitutive modeling
13:00-14:15	**Lunch**	

	Session 10 Room Lisbonne Chair: Frédéric Legoll	Session 11 Room Berlin Chair: Olga Mula
14:15-14:45	**Annika Robens-Radermacher** Coupling PGD model reduction with importance sampling using adaptive subset simulation for reliability analysis	**Virginie Ehrlacher** Model reduction in Wasserstein spaces for transport problems
14:45-15:15	**Anthony Gravouil** Isogeometric analysis suitable trivariate models generation dedicated to reduced order modeling with geometric parameters	**Olivier Zahm** Reducing the input parameter dimension using gradient information
15:15-15:45	**Florian De Vuyst** Physics-guided data-driven reduced-order modeling for nonlinear dynamical problems	**Tommaso Taddei** A registration method for model order reduction: data compression and geometry reduction
15:45-16:15	**Coffee break**	

	Session 12 Room Lisbonne Chair: Mathilde Chevreuil	Session 13 Room Berlin Chair: Jan Hesthaven
16:15-16:45	**Ruth V. Sabariego** Reduced-order models of nonlinear magneto-quasi-static problems. Alternatives to DEIM-POD?	**Macarena Gómez Mármol** On the computation of Proper Generalized Decomposition modes of parametric elliptic problems
16:45-17:15	**Enrique Delgado** Reduced Basis Method for the Boussinesq VMS-Smagorinsky model	**Isabel Sánchez Muñoz** Numerical analysis on the computation of modes for the Proper Generalized Decomposition to parametric elliptic problems

	Banquet	
18:30-20:30	**Visit of Musée d'Orsay**	
20:30-22:30	**Dinner at Musée d'Orsay**	

Day 3 – Friday, November 22

	Session 14 Room Lisbonne	Chair: Julien Yvonnet

08:30-09:00	**Wing Kam Liu**	
	Mechanistic Machine Learning Methods for Mechanical Science and Design/Optimization of Lightweight Material Systems	
09:00-09:30	**Elias Cueto**	
	Learning fluid mechanics from data	
09:30-10:00	**Gianluigi Rozza**	
	Perspectives in Reduced Order Methods in Computational Fluid Dynamics: the effort of increasing the Reynolds number	
10:00-10:30	**Frédéric Feyel**	
	Physical ROMs: how to accomodate nonparametrized variability, nonintrusivity, performance and error indication for large scale industrial applications?	
10:30-11:00	**Coffee break**	

	Session 15 Room Lisbonne Chair: Piotr Breitkopf	Session 16 Room Berlin Chair: El Hamidi Abdallahz
11:00-11:30	**Julien Yvonnet** A two-scale FE2 method using neural networks	**Andrea Manzoni** Nonlinear dimensionality reduction of parametrized PDEs by reduced basis methods and deep learning techniques
11:30-12:00	**Maria Cinefra** Development of reduced structural theories for composite plates and shells via machine learning	**Jan Hesthaven** Nonintrusive reduced basis models through machine learning

	Discussion Room Lisbonne	Chair: David Néron
12:00-12:45	**Discussion, conclusion**	
12:45-14:00	**Lunch - End**	

Practical information

The Lisbon and Berlin rooms are located on level -2. Coffee breaks will be held at level 0.
The "Wine and Cheese" Poster session will take place on level 0.
Finally, lunches will be taken at level 1 where the restaurant is located.

For your presentation, a MacBook Pro (Catalina OS) with Acrobat Reader DC, Office for Mac (PowerPoint) 2019 and Keynote 9 is available.
VLC media player 3 for videos is also installed.
Please bring your presentation material with USB memory device and install it on the computer **before the beginning of the session.**

You can use your own computer **as soon as you have ensured that it is working properly on the beamer.**

Oral presentations will be **30 min long**, including **5 minutes** of discussion.

Session Chairs will enforce these times strictly and will stop presentations that run over time.

A wifi access is available in each conference room. The SSID (name) of the WiFi network is: **WIFIAP**
It is an open wireless network so you don't need any password.

You need assistance?
- Pierre-Alain Guidault +33 6 33 67 19 10
- Pierre-Alain Boucard +33 6 80 61 37 77

« Wine and Cheese » Poster session

Don't miss the Wednesday evening poster session!

Banquet @ Musée d'Orsay
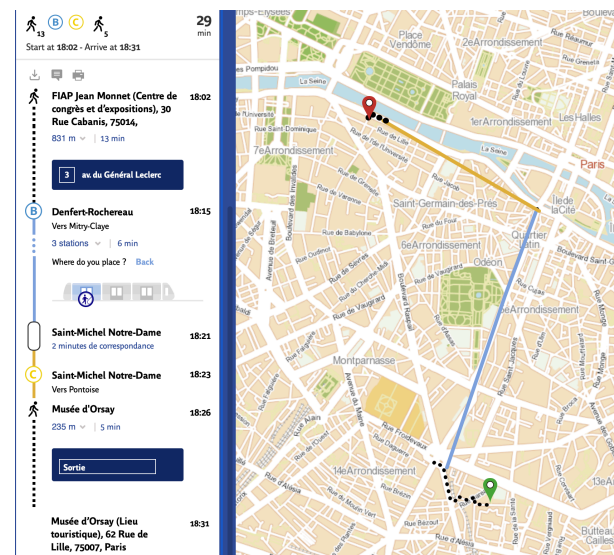
Musée d'Orsay is located:
1 Rue de la Légion d'Honneur, 75007 Paris

You can reach it by
- Metro: Line 12, Solférino station
- RER: Line C, Musée d'Orsay station

The Musée d'Orsay is accessible by public transport in about 30 minutes from FIAP, for example by following the itinerary below.

Please, don't be late	18:30	Visit of Musée d'Orsay
	20:30	Dinner

Scope

Mechanics, like other domains, continues to supply numerous engineering problems which, despite the impressive progress of computational simulation techniques, remain intractable today. RB, PGD and other model reduction methods are leading to a new generation of high-performance computational tools which provide solutions to engineering problems which are inaccessible to standard codes based on classical and well-established numerical techniques.

The workshop is intended to be a meeting ground for the various contributors, including mechanicians, applied mathematicians and other researchers and engineers involved in testing and computation. The Workshop should provide answers to such questions as:

- What are the maturity and the benefits of RB and POD/PGD methods?
- What are also their limitations?
- What engineering challenges, especially in mechanics, could be addressed in the near future?
- What are the key scientific issues?

Main topics

- Convergence, verification and adaptive approaches
- ROM for large numbers of parameters and nonlinear problems
- Uncertainty quantification and propagation
- Multiscale and multiphysics problems
- Quasi-real-time simulations: control, optimization, design…
- Data-based and data-driven ROM
- Non-invasive approaches
- Engineering applications