



📍 ENS Paris-Saclay – Bâtiment Nord –
MV15

EQUIPE STAN

David NERON

RESPONSABLE DE L'OPÉRATION DE RECHERCHE PROBLÈMES PARAMÉTRÉS, STOCHASTIQUES ET OPTIMISATION

PROFESSEUR DES UNIVERSITÉS

Statut : Enseignant·e·chercheur·se

☎ 01 81 87 51 56

@ Courriel

Research activities

Computational strategies for high performance computing:

- › Proper Generalized Decomposition (PGD)
- › Model reduction, approaches for parametrized problems
- › Nonincremental strategy LATIN
- › Time and space multiscale methods
- › Multiphysics, coupled problems
- › Domain decomposition, parallelism
- › Nonlinear behavior, contact

Examples of applications:

- › Fluid-structure interaction in porous media (coll. University of Padova, Italy)
- › Virtual testing of the joints of Ariane 5 space launcher (project funded by CNES, coll. EADS-ASTRIUM-ST)
- › Taking account of variability in engine blades (MAIA/SAFRAN project funded by ANR)
- › Optimization of the geometry of car devices (OMD2/RENAULT project funded by ANR)
- › Taking account of variability in fatigue simulations (APPROFI/SAFRAN project funded by ANR)
- › New solutions of damping in Ariane 6 space launcher (ARIAN/AIRBUS-DS project funded by ANR)
- › Simulation of fretting-fatigue (COGNAC project funded by SAFRAN)
- › Model reduction for the simulation of damage in earthquake engineering (project funded by ANR and IRSN)
- › Transfer of high-performance model reduction techniques to an industrial finite element code (project funded by SIEMENS)

Teaching activities

Teaching activities at the Mechanical Engineering Department of ENS Paris-Saclay

- › Numerical methods for PDEs
- › Continuous solid and fluid mechanics
- › Thermodynamics
- › Model reduction for PDEs and data

Since 2015, Head of the Master 2 Research (MS)2SC (ENS Paris-Saclay / CentraleSupélec)

Responsibilities

- › Since 2020, Director of the Graduate School for Research and Higher Education of Université Paris-Saclay
- › Since 2020, President of CSMA (the French Computational Structural Mechanics Association)
- › Since 2020, Co-Head with Prof U. Nackenhorst of the International Research and Training Group CoMeTeN (IRTG Computational Mechanics Techniques in High Dimensions), a common group ENS Paris-Saclay/University of Hannover
- › 2015-2020, Vice-President of CSMA (the French Computational Structural Mechanics Association)
- › 2015-2021, Deputy Director of LMT, CNRS UMR 8535
- › 2015-2021, Manager of the Structures and Systems sector of LMT
- › 2015-2021, Leader of the Model reduction and dynamics team of LMT

Member of the organizing committee of congresses, including:

- › Co-Chairman of the World Congress of Computational Mechanics / ECCOMAS Congress, Paris, 2021 (digital edition, due to the covid pandemic)
- › Special International Workshop Multiscale Modeling of Heterogeneous Structures, MUMO, Dubrovnik, Croatie, 2016
- › International Workshop Reduced Basis, POD and PGD Model Reduction Techniques, Cachan, 2015
- › International Workshop Reduced Basis, POD and PGD Model Reduction Techniques, Cachan, 2015
- › International Workshop Reduced Basis, POD and PGD Model Reduction Techniques: a Breakthrough in Computational Engineering?, Cachan, 2011
- › European Conference of Computational Mechanics, ECCM 2010, Paris, 2010
- › Neuvieme Congres de Calcul des Structures, Giens, 2009
- › Challenges in Computational Mechanics, Cachan, 2006
- › Multiscale Computational Mechanics for Material and Structures, Cachan, 2002

Publications

2023

Journal articles

[A hybrid frequency-temporal reduced-order method for nonlinear dynamics](#)

Alexandre Daby-Seesaram, Amélie Fau, Pierre-Étienne Charbonnel, David Néron
Nonlinear Dynamics, 2023, 111, pp.13669-13689. [\(10.1007/s11071-023-08513-8\)](#)



[A stochastic LATIN method for stochastic and parameterized elastoplastic analysis](#)

Zhibao Zheng, David Néron, Udo Nackenhorst
Computer Methods in Applied Mechanics and Engineering, 2023



Conference papers

[A first illustration of a multimodel strategy for coupled multiphysics problems](#)

Floriane Wurtzer, Pierre-Alain Boucard, Pierre Ladevèze, David Néron
VII ECCOMAS Young Investigators Conference, Jun 2023, Porto, Portugal



[Towards a model-order reduction strategy for nonlinear dynamics parametric simulations](#)

Alexandre Daby-Seesaram, Amélie Fau, Pierre-Étienne Charbonnel, David Néron
9th International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering, Jun 2023, Athens, Greece

