

# LI-PA

Laborat  
parallélisme, réseaux, alg

## PARALLEL PROGRAMMING MODELS - PRODUCTIVITY AND APPLICATIONS FOR EXASCALE AND BEYOND

**SPPEXA (Priority Programme “Software for Exascale Computing”) is a priority program in Germany addressing research on various aspects of HPC software, which is particularly urgent against the background that we are currently entering the era of ubiquitous massive parallelism.**

The three fields, parallel programming models, HPC tools to foster productivity, and applications in numerical computing form the common interests of the SPPEXA projects MYX, ESSEX-II and DASH, and comprised the themes of the first edition of the workshop which was hold on 2017, April in Tokyo (Japan). This workshop allowed to identify opportunities for interaction between the three projects and showed the convergence between them for future collaborations. The participants agreed that it would be a good consortium of researchers for future research on software for Exascale supercomputers and beyond. Then, it was decided to organize another joint workshop in Europe with

these three projects.

The goal of this second edition of workshop is to foster collaborations between these three projects attract attendance from Europe and Japan beyond the SPPEXA projects. Furthermore, in this desire for international openness, international invited Prof. Jack Dongarra and Prof. Vassil Alexandrov will round off the scientific program of the workshop.

In addition to the invited presentations, the agenda contains contributions from the SPPEXA PIs on the recent progress made in the projects. Project members – young researchers – will present their individual results and next steps. In summary, the workshop will consist of many short talk in the order of 15 to 20 minutes (link to the program). The agenda and the social interactions are expected to make new contacts among the participants to build upon in the future.

Program - 461Ko, PDF" class="lien\_interne">> **Program**

**Location:** The SPPEXA workshop will take place at the Faculty of Sciences of the University of Versailles (UVSQ, 45 avenue des Etats-Unis, 78035 Versailles cedex)

Access - 7 Ko, PDF" class="lien\_interne">> Access by public transportation from Paris

> **Pictures of the events are now available!**

### **Presentations:**

1. Overview of SPPEXA, B. Uekerman [pdf]
2. Overview of MYX, T. Boku [pdf]
3. Overview of ESSEX II Project, G. Hager [pdf]
4. Overview of Smart-DASH: Distributed Data Structures and Parallel Algorithms, J. Gracia [pdf]
5. Towards Advanced Hybrid Monte Carlo Methods for Linear Algebra for Extreme Scale Systems: Latest Advances and Results, V. Alexandrov [pdf]
6. An Overview of High-Performance and a Look at Energy Saving on the Intel Knights Landing for Linear Algebra Computations, J. Dongarra [pdf]
7. Correctness analysis for one-sided communication in MUST, M. Mueller [pdf]
8. Development of a Scalable Parallel Eigensolver for Large-scale Simulations and Data Analysis, T. Sakurai [pdf]
9. Incorporating Heterogeneous Memory Hierarchies in DASH, R. Kowaleski [pdf]
10. A programming paradigm for extreme computational and data science, S. Petiton [pdf]

11. Preconditioned Iterative Solvers in ppOpen-HPC/pKOpen-HPC for ESSEX-II, K. Nakajima [pdf]
12. Supporting Global Task Dependencies in DASH, J. Schuchart [pdf]

## INFORMATIONS COMPLÉMENTAIRES

### Workshop organizers

- » **Chair:** Nahid Emad (LI-PaRAD/Maison de la Simulation)
- » **Co-chair:** Thomas Dufaud (LI-PaRAD/Maison de la Simulation)
- » **Ogranizer:** Isabelle Moudenner (LI-PaRAD)

### List of recommended hotels

#### » Hôtel Richaud

Adress: 16, rue Richaud, 78000 Versailles

e-mail: [contact@hotelrichaud-versailles.com](mailto:contact@hotelrichaud-versailles.com)

website: <https://www.hotelrichaud-versailles.com/contact-et-access>

#### » Hôtel du Cheval Rouge

Adress: 18, rue André Chénier, 78000 Versailles, France

website: <http://www.chevalrougeversailles.fr/en>

### Affiliation

» **LI-PaRAD** (EA 7432), UFR des sciences, Université de Versailles Saint-Quentin-en-Yvelines (UVSQ), 45 avenue des Etats-Unis, 78035 Versailles Cedex, France

web: <http://www.liparad.uvsq.fr>

» **Maison de la simulation** ( USR 3441 – CEA, CNRS, INRIA, UVSQ, U-Paris Sud), Bâtiment 565 – Digiteo, CEA Saclay, 91191, Gif-sur-Yvette cedex, France

web : <http://www.maisondelasimulation.fr>