

# **GT09 Town Hall Meeting: Calcul, Algorithmes et Données**

## **Rapport sur les contributions**

ID de Contribution: 1

Type: **Non spécifié**

## **Internet of Things —a key topic for IN2P3?**

*jeudi 17 octobre 2019 17:35 (20 minutes)*

Distributed detectors and control systems are a reality in IN2P3 experiments (accelerators, telescope arrays, KM3NeT,...). What are the possible benefits in a coordinated IoT effort, e.g. in combination with Machine Learning, and shall this be a key element of the perspectives?

**Orateur:** SARRAMIA, David (LPC Clermont-Ferrand)

ID de Contribution: 2

Type: **Non spécifié**

## **Sustainable computing model(s) for IN2P3**

*jeudi 17 octobre 2019 13:20 (20 minutes)*

Tier-model, centralised architecture or data lake approach: which model or mix of models best answers to our scientific requirements?

**Orateur:** RAHAL, Ghita (IN2P3/CNRS)

**Classification de Session:** Computing Models

ID de Contribution: 3

Type: **Non spécifié**

## **Data Organisation Management and Access (DOMA)**

*jeudi 17 octobre 2019 13:40 (20 minutes)*

First results of DOMA (Data Organisation Management and Access), data lake with xCache, possibility of diskless computing centres

**Orateur:** FEDE, Eric (CC-IN2P3/CNRS)

**Classification de Session:** Computing Models

ID de Contribution: 4

Type: **Non spécifié**

## Heterogeneous infrastructures

*jeudi 17 octobre 2019 14:00 (20 minutes)*

The challenge of integrating HPC, accelerators (e.g. GPU) and commercial cloud solutions —is it worth the effort, what should be the focus, what are potential benefits?

**Orateur:** ARRABITO, Luisa (LUPM)

**Classification de Session:** Computing Models

ID de Contribution: 5

Type: **Non spécifié**

## **Table ronde: Computing model evolution at IN2P3**

*jeudi 17 octobre 2019 14:20 (45 minutes)*

Participants: Luisa Arrabito (LUPM), Sabine Crépe-Renaudin (LPSC), Dominique Fouchez (CPPM), Fabrice Jammes (LPC), Pierre-Etienne Macchi (CC-IN2P3)

Moderated discussion of the above topics and questions.

- What is the impact of experiment's centralized or distributed computing models at the French level?
- What about heterogeneity/complexity of supported solutions/experiments?
- Is IN2P3 willing/has the capability to participate to the current R&D works?

**Orateur:** NEYROUD, Nadine (LAPP)

**Classification de Session:** Computing Models

ID de Contribution: 6

Type: **Non spécifié**

## Virtualisation and academic clouds

*vendredi 18 octobre 2019 09:00 (20 minutes)*

Virtualisation is not only interesting for small and medium size projects, but also in general a way to preserve and share workflows. Benefits and drawback of academic clouds, such as the ones provided through France Grilles.

**Orateur:** BRETON, Vincent (CNRS-IN2P3)

**Classification de Session:** Overall infrastructure needs / development

ID de Contribution: 7

Type: **Non spécifié**

## **Table ronde: How to better coordinate between the different domains?**

*vendredi 18 octobre 2019 09:20 (30 minutes)*

Participants: Vincent Breton (LPC), Eric Chassande-Mottin (APC)

Solutions for WLCG and large projects are not necessarily applicable for a wide range of smaller projects within IN2P3. How can we better satisfy the different needs, how should this be coordinated and what should be the focus?

**Orateur:** LE JEUNE, Maude (APC)

**Classification de Session:** Overall infrastructure needs / development



ID de Contribution: **8**

Type: **Non spécifié**

## Portability of code

*vendredi 18 octobre 2019 09:50 (20 minutes)*

What can be the way forward in using accelerators (GPU, FPGA) and HPC in our field? Is dedicated re-coding necessary, or are abstraction layer libraries like alpaka, kokkos, SYCL the way forward?

**Orateur:** CHAMONT, David (LAL - IN2P3 - CNRS)

**Classification de Session:** Accelerators

ID de Contribution: 9

Type: **Non spécifié**

## **FPGA (Field-Programmable Gate Array)**

*vendredi 18 octobre 2019 10:10 (20 minutes)*

Challenges and benefits in the usage of FPGAs

**Orateur:** SAUVAN, Jean-Baptiste (LLR)

**Classification de Session:** Accelerators

ID de Contribution: **10**

Type: **Non spécifié**

## Quantum Computing

*vendredi 18 octobre 2019 11:00 (20 minutes)*

Status and possible impact of Quantum Computing for our sciences

**Orateur:** VULPESCU, Bogdan (Laboratoire de Physique de Clermont)

**Classification de Session:** Emerging Technologies

ID de Contribution: 11

Type: **Non spécifié**

## **Table ronde: Emerging technologies —shall we lead or shall we follow?**

*vendredi 18 octobre 2019 11:20 (30 minutes)*

Participants: Catherine Biscarat (L2IT), Gilles Grasseau (LLR), Bogdan Vulpescu (LPC)

Emerging technologies, like Quantum Computing, provide a large potential but also a great risk. Shall IN2P3 engage actively in these domains as contributor / developer, or rather observe the field and enter as a user in a later stage?

**Orateur:** M. CLÉDASSOU, Rodolphe (IN2P3)

**Classification de Session:** Emerging Technologies

ID de Contribution: 12

Type: **Non spécifié**

## Software development and quality

*vendredi 18 octobre 2019 12:10 (20 minutes)*

WLCG and space projects impose strict quality assurance for developers. What are key points here? What could be the benefit for other, smaller projects to impose standards, rules, etc. Should IN2P3 provide centralised solutions and services in this context?

**Orateur:** PÉRUS, Antoine (Cnrs/In2p3/Lal)

**Classification de Session:** Additional aspects

ID de Contribution: 13

Type: **Non spécifié**

## **Open Data: motivation, challenges and solutions**

*vendredi 18 octobre 2019 11:50 (20 minutes)*

The pressure on the scientific community, to provide open access to data derived in their experiments, is rising (e.g. loi numérique, plan national science ouverte). How do we respond to that, what changes are necessary?

**Orateur:** CHASSANDE-MOTTIN, Eric (CNRS AstroParticule et Cosmologie)

**Classification de Session:** Additional aspects

ID de Contribution: 14

Type: **Non spécifié**

## Table ronde: Future effort: focused or wide open?

*vendredi 18 octobre 2019 12:30 (40 minutes)*

Participants: L. Arrabito (LUPM), F. Derue (LPNHE), E. Ishida (LPC), A. Moller (LPC), P. Verdier (IN2P3)

Throughout the topics (computing model, ML, emerging technologies) a main question is whether we should focus our activities on a few, central projects and topics (WLCG, large astroparticle projects) and find solutions for those, or whether a broader approach should be taken. This is also connected to questions like whether we concentrate our effort to build up and maintain expertise on the lab level, or whether we push stronger for IN2P3-wide solutions, e.g. through stronger réseaux and participation in IN2P3-calcul&données master projects? Is creating expertise-clusters on specific topics in certain labs a way to go forward?

**Orateur:** DUFLOT, Laurent (LAL)

**Classification de Session:** Final Discussions

ID de Contribution: 15

Type: **Non spécifié**

## Summary & Outlook

*vendredi 18 octobre 2019 13:10 (20 minutes)*

Short summary of the main topics raised during the Town Hall Meeting and outlook on the next steps to arrive at the final “Prospective Calcul & Données”.

**Orateur:** BECKMANN, Volker (CNRS / IN2P3)

**Classification de Session:** Final Discussions



ID de Contribution: 16

Type: **Non spécifié**

## **Development of ML for Particle Physics. Training and CS collaboration.**

*jeudi 17 octobre 2019 15:35 (25 minutes)*

**Orateur:** DONINI, Julien (UBP/LPC/IN2P3)

**Classification de Session:** Artificial Intelligence

ID de Contribution: 17

Type: **Non spécifié**

# Development of ML for Astroparticle Cosmology

*jeudi 17 octobre 2019 16:00 (25 minutes)*

**Orateur:** Dr ISHIDA, Emille (LPC-UCA)

**Classification de Session:** Artificial Intelligence

ID de Contribution: **18**

Type: **Non spécifié**

## **Fast ML application and implementation**

*jeudi 17 octobre 2019 16:25 (25 minutes)*

**Orateur:** GLIGOROV, Vladimir (LPNHE)

**Classification de Session:** Artificial Intelligence

ID de Contribution: 19

Type: **Non spécifié**

## **Table ronde: What ML development is the most appropriate for an IN2P3-wide approach, beyond exchange of experience ?**

*jeudi 17 octobre 2019 16:50 (45 minutes)*

Does it make sense to push for advancement in Machine Learning on the institute level, or are problems/solutions too specific for each project and lab? What does this mean for the effort on training and recrutement?

**Orateur:** COADOU, Yann (CPPM, Aix-Marseille Université, CNRS/IN2P3)

**Classification de Session:** Artificial Intelligence

ID de Contribution: **20**

Type: **Non spécifié**

## Introduction

*jeudi 17 octobre 2019 13:00 (20 minutes)*

- Description of the aim of the prospectives IN2P3
- Goals of the Town Hall Meeting
- Explanation of next steps

**Orateur:** BECKMANN, Volker (CNRS / IN2P3)