Monday 24th June :

14h-18h : Nanocrystals/ligands-doping-impurity coupling : How to improve and modulate in a controlled way the intrinsic properties of nanocrystals? What are the new properties (electronic, plasmonic) generated by this coupling? What is the influence on the electronic and optical properties (interface state, intrinsic state)?

Speakers :
- **Emmanuel Lhuillier** (INSP, Paris, France): *Doping of III-V and II-VI semiconductor nanocrystals, tuning of optoelectronic properties.*
- **Stefano Ossicini** (Modena University, Italy): *Theoretical modeling of doped semiconductor nanocrystals* .
- **Bruno Masenelli** (INL, Lyon, France): *Doping of ZnO nanocrystals, tuning of plasmonic properties.*

Tuesday 25th June :

08h30- 12h30 Nanocrystals coupled to nanostructures :
Interaction between plasmonic nanostructures and 2D materials (graphene, transition metal dichalcogenides). Study of the coupling between plasmons and 2D confined excitons. Coupling between the nanocrystals and their environment (magnetic, chemical, organic matrix) and probing of their electronic properties.

Speakers :
- **Jérôme Plain** (LNIO, Troyes, France): *Nanocrystals and nanostructures for plasmonics.*
- **Jan Linnros** (KTH, Stockholm, Sweden): *Optical spectroscopy of nanocrystals.*

14h00- 16h30 : Lab works
- *Simulation of electronic transport properties : Coulomb blockade, Single electron transistor (**J.F. Dayen, Y. Leroy**).*
- *Simulation of optical properties, plasmonics, band structures : intoduction to finite-difference time-domain methods (FDTD) (**J. Plain**)*
- *Ellipsometric measurements and simulation of spectra obtained on nanocrystals embedded in a matrix (**Thomas Easwarakhanthan**, **Otman En Nacriri**)*
- *Analyses of STEM-EELS data (**Xavier Devaux**)*

17h00-18h30 : **Table ronde «** *How to create a Start-up » :* **Vincent Bouchiat, Bertrand Kierren, more to be announced.**

Wednesday 26th June

08h30- 12h30 Growth and self-ordering of nanocrystals
How to organize nanocrystals at the nanoscale in 1D, 2D or 3D heterostructures? What are the new approaches offered by the growth and self-organization of nanocrystals on 2D materials? How can the properties (magnetic, electronic, optical) of these heterostructrues be modified through the control of inter-nanocrystal or nanocrystal / matrix (or 2D template) coupling?

Speakers :
- **Benoît Pichon** (IPCMS, Strasbourg, France): *Self-assembly and functionalization of nanocrystals : bottom-up approach.*
- **Johann Coraux** (Néel Institut, Grenoble, France): *2D materials: a template for nanoclusters with uniform physical and chemical properties.*
- **Véronique Dupuis** (INL, Lyon, France): *Physical growth of nanocrystals and their structural and magnetic properties in their environment*

SOCIAL EVENT: Afternoon

Thursday 27th June :

08h30- 12h30 Multifunctional and Hybrid Nanomaterials :
Chemical and physical synthesis strategies for nanocrystals-based multifunctional hybrid nanomaterials ? What are the physical properties emerging from interactions between distinct nanomaterials ?

Speakers :
- **Marcus Scheele** (Université de Tubingen, Allemagne) : *Coupled organic–inorganic nanostructures*
- **David Portehault** (LCMCP, Paris, France): *Surface reactivity of nanoparticles and impact on properties*
- **Harald Giessen** (University of Stuttgart, Stuttgart, Allemagne): *Multifunctional nanomaterial : new properties from interactions.*

14h00-16h30 : Lab work
*Simulation of electronic transport properties: Coulomb blockade, Single electron transistor (**J.F. Dayen, Y. Leroy**).*
*- Simulation of optical properties, plasmonics, band structures: intoduction to finite-difference time-domain methods (FDTD) (**J. Plain**)*
*- Ellipsometric measurements and simulation of spectra obtained on nanocrystals embedded in a matrix (**Thomas Easwarakhanthan**, **Aotmane En Naciri**)*
*- Analyses of STEM-EELS data (**Xavier Devaux**)*

17h00-18h30 : **Tables ronde** « European projects and European Networks » *:* t.b.a

Friday 28th June :

08h30-12h30 Experimental techniques to investigate nanomaterials interacting with their environment :
State of the art and new tools for structural characterization of nanocrystals and their couplings, in particular using Transmission Electron Microscopy techniques and in particular their associated in-situ and in-operando spectroscopies.
Speaker :
- **Hervé Aubin** (C2N, Saclay, France) : *Electronic spectroscopy of nanocrystals.*
- **Mathieu Kociak** (LPS, Paris, France) : *STEM characterization for Nano-optics*
- **Giancarlo Rizza** (LSI, Palaiseau, France) : *Gas and liquid enviromental TEM.*