



Round Table : May 25 , 2018 during the 1st International Meeting on Nanoalloys 2018 about the International Research Network IRN “Nanoalloys”

- **Network Coordination**
 - Coordinator: Pascal Andreatza, ICMN, Interface, Confinement, Matériaux et Nanostructures, CNRS, Université d'Orléans
 - Vice coordinator: Riccardo Ferrando, Department of Chemistry and Industrial Chemistry, Università di Genova, Italy
- We have obtained the agreement for the IRN creation from the INP (Physics department) of the CNRS French scientific research organization

BUT not yet the official one of the **partners (universities)**

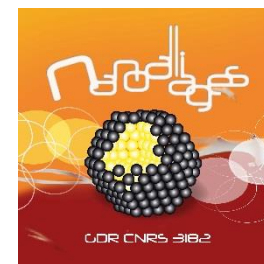
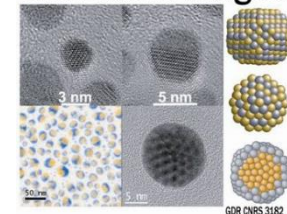
The IRN is formally accepted, with one year (2018) for the bureaucratic aspects (contract signatures)



The Past: events and networks

- In **September 2007**, a **Faraday Discussion** with title: “**Nanoalloys**: From Theory to Application” has been held at the University of Birmingham, UK, chaired by Roy L. Johnston.
- From **2008 to 2011**, the pure French network **GDR 3182 “Nanoalliages”** was founded to structure the French community and to promote scientific exchanges and transfer of knowledge, chaired by C. Ricolleau and C. Mottet.
- From **2010 to 2014**, this initiative is extended to the European nanoalloy community with a European network **COST Action MP0903 “Nanoalloys”** chaired by R. Ferrando.
- From **2012 to 2015**, the **GDR 3182 “Nanoalliages”** was extended in time “**Nanoalliages et Nanohybrides**”, chaired by C. Ricolleau and C. Mottet, also.

GDR NanoAlliages





Time table:

- **July 2017:** submission to the CNRS of the IRN project
grading and acceptance by the CNRS INP Steering committee
- **Janv 2018-dec 2018:** intermediate period = 1 year
 - Contract signature period (CNRS and Universities) not yet done
 - kickoff meeting of the network, today
- **Janv 2019-dec 2022:** full activity period = 4 years

Funding:

- from CNRS = **15K€/year** (for meeting organization...) - financial management by the French leader but only 7.5 K€ for the intermediate year -2018
 - from Non-French partners (**4K€** per partner for mobility and meeting costs) - financial management by each partners
 - Mission expenses for French members could support by the French laboratories
- + extra funding from universities, laboratory, organizations, contracts ...



Mains topics of the networks

1. Equilibrium properties: structure and environment effects

- 1.1. Size-dependent nanoalloy phase diagrams and transitions
- 1.2. Effects of the environment (supports, matrix confinement, organic ligands, liquid environments, gas adsorption)
- 1.3. Strain engineering in binary and ternary nanoalloys

2. Out-of-equilibrium effects: growth, kinetic, mobility

- 2.1. Growth Kinetics
- 2.2. Ageing : from metastable initial state to equilibrium
- 2.3. Collective effects in assemblies of nanoalloys

3. Nanoalloy properties and their relationship with structure and environment

- 3.1. Catalytic properties: pressure gap, surface segregation, stability and chemical reactivity
- 3.2. Magnetic properties: morphologies, strain and coupling nanocomposites to improve magnetic moment and anisotropy
- 3.3. Optical properties: effect of the matrix, or ligands, morphologies and coupling in nanohybrids to tailor plasmonic properties



International Research Network IRN “Nanoalloys”

the IRN's missions are in particular to:

- coordinate the organisation of **conferences**, lectures, seminars, symposiums, **theme-based workshops**, or any other type of meeting dealing with the scientific theme.;
- facilitate and encourage exchange of information and documentation on the scientific theme;
- identify common research projects relating to the scientific theme;
- coordinate replies to invitations to tender for supporting research and technological development, particularly H2020 invitations to tender;
- encourage permanent training initiatives, like **schools** and promote pedagogical operations.

1. French partners

- 1st circle:**
1. ICMN, Interface, Confinement, Matériaux et Nanostructures, Orléans
 2. CINaM, Centre Interdisciplinaire des Nanosciences de Marseille, Marseille
 3. ICMMO, Institut de Chimie moléculaire et des matériaux d'Orsay, Orsay
 4. ILM, Institut Lumière Matière, Lyon
 5. IRCELYON, Institut de rech. sur la catalyse et l'environnement de Lyon, Lyon
 6. MONARIS, De la molécule aux nano-objets, Paris
 7. MPQ, Matériaux et Phénomènes Quantiques, Université Diderot, Paris
 8. CEMES, Centre d'Élaboration de Matériaux et d'Etudes Structurales, Toulouse

- 2nd circle:**
9. INSP, Institut de Nanosciences de Paris, Paris
 10. IC2MP, Institut de Chimie des Milieux et Matériaux de Poitiers, Poitiers
 11. LIPhy, Laboratoire Interdisciplinaire de Physique, Grenoble
 12. IPCMS, Institut de Physique et Chimie des Matériaux de Strasbourg, Strasbourg
 13. LEM, Laboratoire d'études des microstructures, ONERA-CNRS, Chatillon
 14. ICG, Institut Charles Gerhardt, Montpellier
 15. GREMI, Groupe de Recherches sur l'Energétique des Milieux Ionisés, Orléans
 16. LPC, Laboratoire de Chimie Physique, Orsay
 17. Minatec, CEA, Grenoble
 18. LEPMI, Laboratoire d'Electrochimie et de Physicochimie des Interfaces, Grenoble
 19. LRS, Laboratoire de réactivité de Surface, Paris
 20. LCC, Laboratoire de Chimie de Coordination, Toulouse
 21. LPCNO, Laboratoire de Physique et Chimie des Nano-objets, Toulouse
 22. Institut Pprime, Poitiers
 23. Laboratoire de Chimie de l'ENS, Lyon
 24. MATEIS, Laboratoire Matériaux, Ingénierie et Sciences, Lyon
 25. ICMCB, Institut de Chimie de la Matière Condensée de Bordeaux, Bordeaux

2. International partners

- 1st circle:

1. Università di Genoa, Department of Chemistry and Industrial Chemistry, Italy,
2. KU Leuven, Department of Physics and Astronomy/ Laboratory of Solid State Physics and Magnetism, Belgium,
3. Swansea University, College of Engineering, UK,

- 2nd circle:

4. University of Birmingham, School of Chemistry and School Physics and Astronomy, UK,
5. King's College London, UK,
6. ...



Which actions for the IRN “Nanoalloys”

- actions in the real world: general meeting, school, thematic meeting, collaborative proposal
- actions in the virtual world: via the web site or mailing list: jobs, meeting announcements, highlighted scientific papers, data base??

List of potential actions:

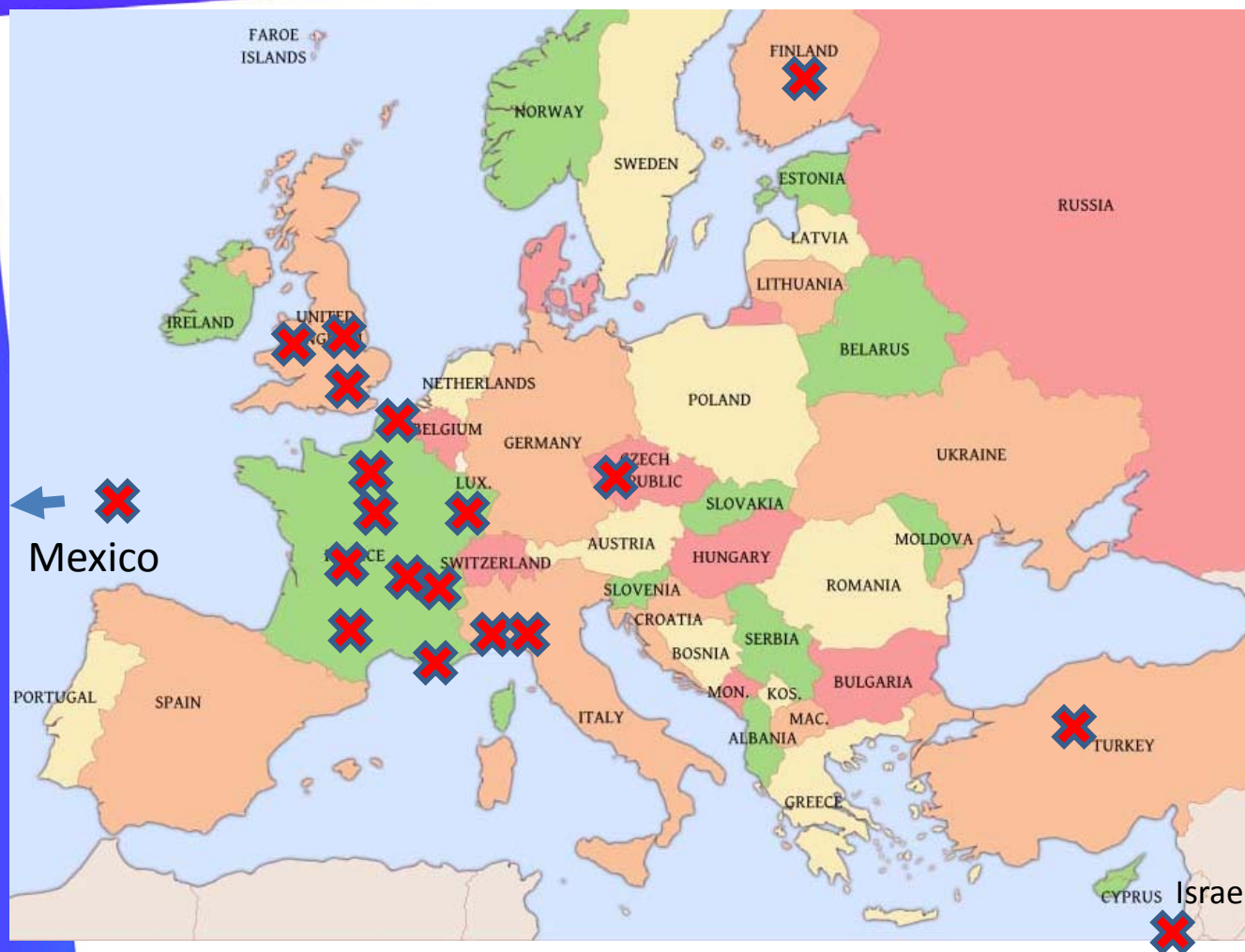
- **Annual general meeting and topical workshops (when and where the next meeting?)**
- **Schools** : General, Computing simulation, characterization techniques, ...
- **Cooperative actions with others international network :**
Example: **European Horizon 2020 project “CritCat”** (The aims are to provide solutions for the substitution of critical metals, especially rare platinum group metals, used in heterogeneous and electrochemical catalysis) **Next Meeting in Swansea, wales, UK** in October 2018 (oct 31- nov 01)
- **Cooperative actions with sister French networks** (GDR Ornano and GDR Nano-operando)

At last,

- Submitting a proposal to organize a “**Faraday Discussion**”: 2020
- Submitting a ITN project (MARIE SKŁODOWSKA-CURIE **INNOVATIVE TRAINING NETWORKS**): 2020



IMN 2018



1 public lecture
35 oral contributions
11 short oral contributions
18 posters

71 participants
30 labs
11 countries

2½ days:
8 oral sessions
1 poster session
1 IRN lab presentation session
1 round table

 China
 Japan

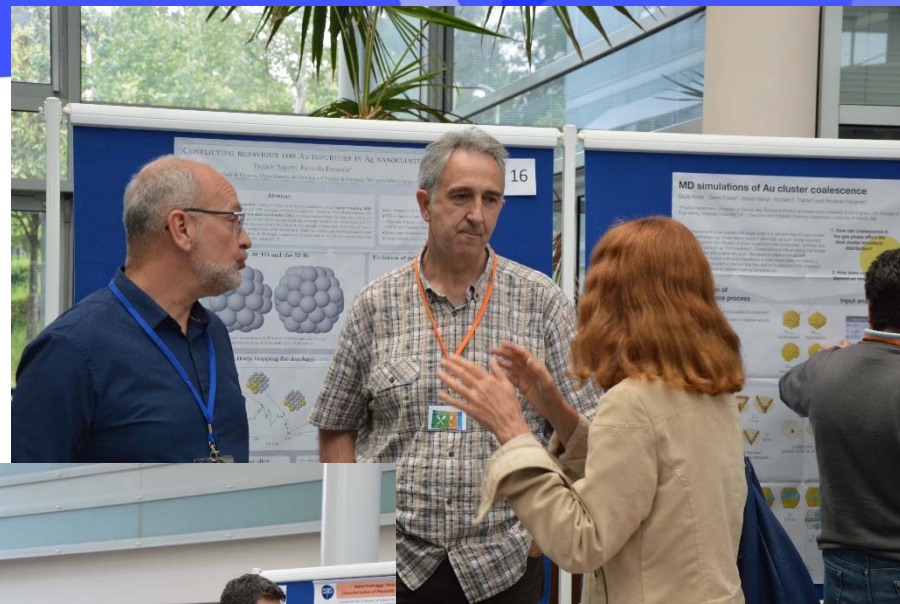
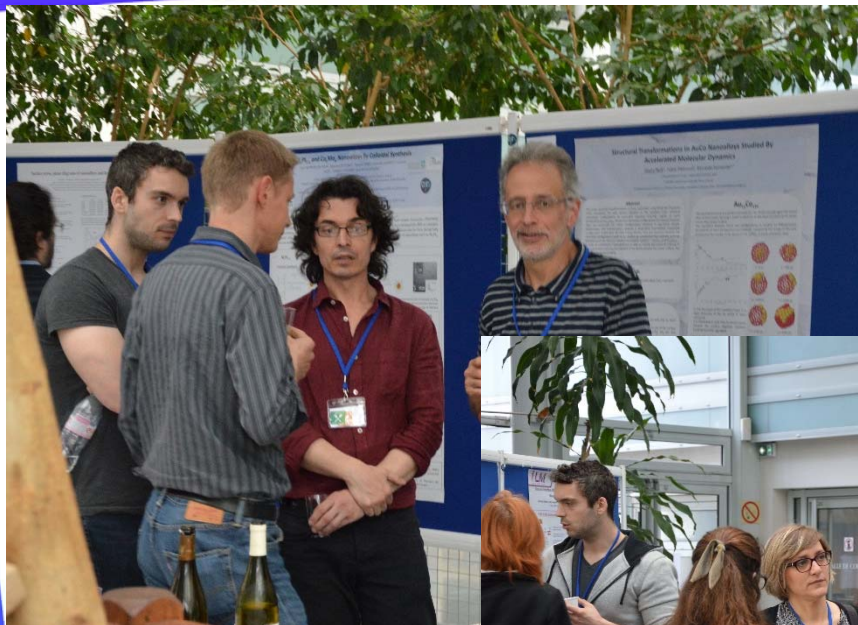
International Meeting on Nanoalloys - Orléans France - May 22-25



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IMN 2018



International Meeting on Nanoalloys - Orléans France



IMN 2018

The next meeting IMN: **when and where**

- Next year
- Not in France: but maybe
in Italy? In Genoa



Discussion in the round table, this afternoon



Next meeting of the International Research Network IRN

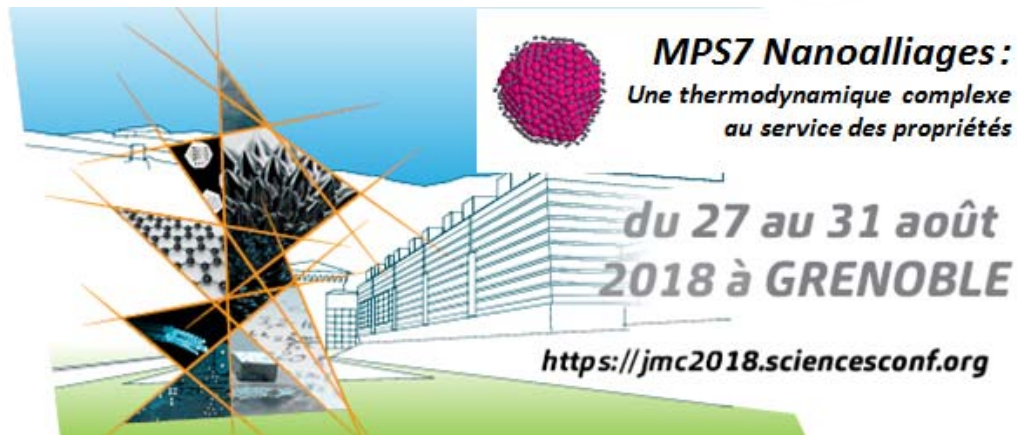
in Genoa, Italy, in the first semester of 2019

Program: *with invited talks*

1. Equilibrium structure with or without environment effects (gas, matrix, liquid, support)
2. Out-of-equilibrium effects: growth, kinetic, mobility (more **highlighted**)
3. Nanoalloy properties and their relationship with structure and environment

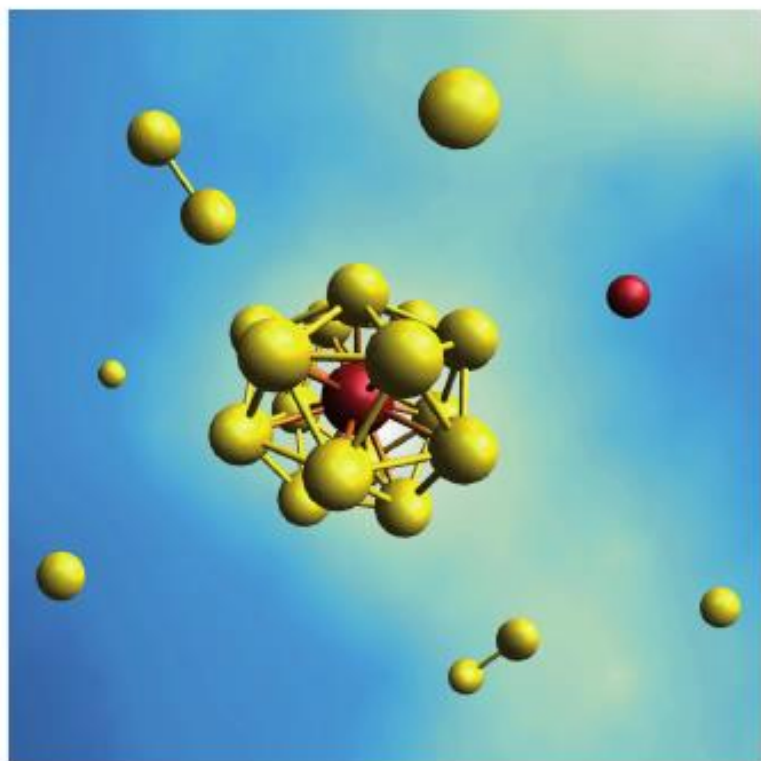


IMN 2018



Florent CALVO, LiPhy, Grenoble
Florent TOURNUS, ILM, Lyon
Pascal ANDREAZZA, ICMN,

Nanoalloys: From Theory to Application



RSC Publishing

Meeting in Birmingham
in September 2007
Volume published in 2008

Committee
Roy Johnston
Riccardo Ferrando
Claude Henry
Peter Lievens
Brian Johnson

Proposal for a new Faraday Discussion meeting

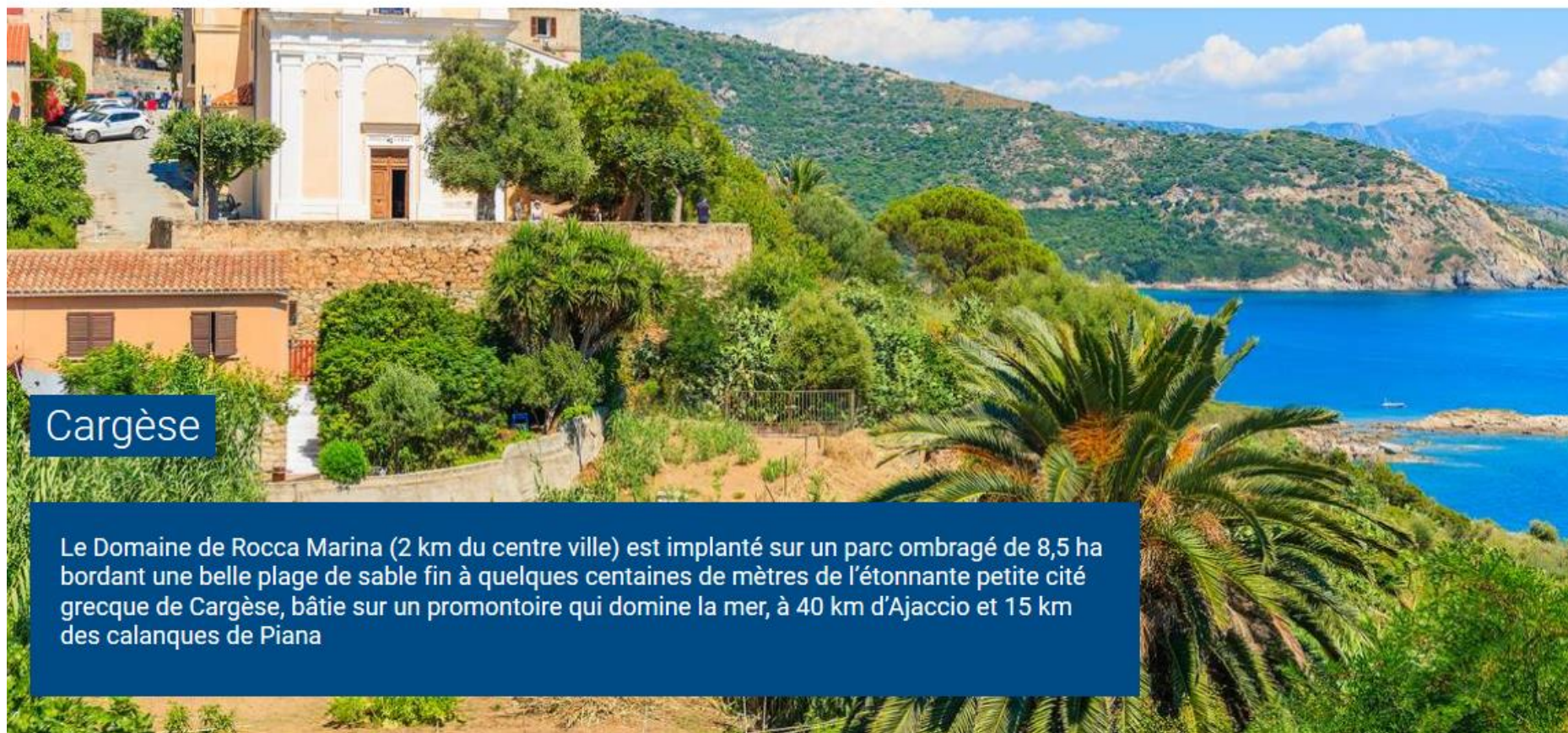
*Very exciting progress in the last ten years
It is time to have a new meeting (in 2020 or 2021)*

Roy & Riccardo
Orleans, May 24th, 2018

Possible locations, in alphabetical order
Birmingham, Genoa, Leuven (thanks to Ewald)

Possible organizers: Roy (from UK! of course), Riccardo (from previous team), and a French partner (an IRN member: experimentalist?)
and Ewald (the local organizer)

SCHOOL in Cargèse ???



Cargèse

Le Domaine de Rocca Marina (2 km du centre ville) est implanté sur un parc ombragé de 8,5 ha bordant une belle plage de sable fin à quelques centaines de mètres de l'étonnante petite cité grecque de Cargèse, bâtie sur un promontoire qui domine la mer, à 40 km d'Ajaccio et 15 km des calanques de Piana

SCHOOL in Cargèse ???

Requirement to book quickly the CNRS seminar center of Cargèse in Corsica, France (to later for 2019).

Question: it seems to be difficult to mobilize the community of nanoalloys for a Faraday discussion and a school the same year ?

Maybe “School” in 2020 and “faraday discussions” in 2021

MARIE SKŁODOWSKA-CURIE INNOVATIVE TRAINING NETWORKS

Objective: *The Innovative Training Networks (ITN) aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit.*

ITN will raise excellence and structure research and doctoral training in Europe, extending the traditional academic research training setting, incorporating elements of Open Science and equipping researchers with the right combination of research-related and transferable competences. It will provide enhanced career perspectives in both the academic and non-academic sectors through international, interdisciplinary and intersectoral mobility combined with an innovation-oriented mind-set.

Scope: ITN supports competitively selected joint research training and/or doctoral programmes, implemented by partnerships of universities, research institutions, research infrastructures, businesses, SMEs, and other socio-economic actors from different countries across Europe and beyond.

Partnerships take the form of collaborative European Training Networks (ETN), European Industrial Doctorates (EID) or European Joint Doctorates (EJD).

Each programme should have a clearly identified supervisory board co-ordinating network-wide training and establishing active and continuous communication and exchange of best practice among the participating organisations to maximise the benefits of the partnership.

The programme should exploit complementary competences of the participating organisations, and enable sharing of knowledge, networking activities, the organisation of workshops and conferences.

Training responds to well identified needs in defined research areas, with appropriate references to inter- and multidisciplinary fields and follows the [EU Principles for Innovative Doctoral Training](#). It should be primarily focused on scientific and technological knowledge through research on individual, personalised projects.

In order to increase the employability of the researchers, the research training should be complemented by the meaningful exposure of each researcher to the non-academic sector. Secondments of the researcher to other beneficiaries and partner organisations are encouraged, but should be relevant, feasible, beneficial for the researchers and in line with the project objectives.

Indicative timetable: open: 12 October 2019 –close: 09 January 2020

MARIE SKŁODOWSKA-CURIE INNOVATIVE TRAINING NETWORKS

Substantial training modules, including digital ones, addressing key transferable skills common to all fields and fostering the culture of Open Science, innovation and entrepreneurship will be supported.

In order to reflect the new *modus operandi* of research supporting the development of open science, training should prepare early-stage researchers for increased research collaborations and information-sharing made possible by new (digital) technologies (e.g. collaborative tools, opening access to publications and to research data, FAIR² data management, public engagement and citizen science, etc.).

A Career Development Plan should be established jointly by the supervisor(s) and each early-stage researcher recruited by the selected network. In addition to research objectives, this plan comprises the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences.

Attention is paid to the quality of supervision and mentoring arrangements as well as career guidance. Joint supervision of the researchers is mandatory for EJD and for EID, and encouraged in ETN. In EID, the joint supervision of the researcher must be ensured by at least one supervisor from the academic sector and one supervisor from the non-academic sector. These arrangements will be taken into account during the evaluation of the proposal.

In EID and EJD, fellowships offered to early-stage researchers should lead to a doctoral degree. EJD result in joint³, double or multiple doctoral degrees⁴ awarded by institutions from at least two different countries, primarily within Europe.

In EID and EJD, enrolment in a doctoral programme and the creation of a joint governance structure - with joint admission (EJD only), selection, supervision, monitoring and assessment procedures - is mandatory. These arrangements will be taken into account during the evaluation of the proposal.

MARIE SKŁODOWSKA-CURIE INNOVATIVE TRAINING NETWORKS

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-msca-itn-2018.html>

http://cache.media.education.gouv.fr/file/Actions_Marie_Sklodowska-Curie/97/9/h2020-wp1820-msca_en_838979.pdf

Expected Impact:

At researcher level:

- Increased set of skills, both research-related and transferable ones, leading to improved employability and career prospects both in and outside academia (leading in the longer-term to more successful careers)
- Increase in higher impact R&I output and more knowledge and ideas converted into products and services
- Greater contribution to the knowledge-based economy and society

At organisation level:

- Enhanced cooperation and better transfer of knowledge between sectors and discipline
- Improvement in the quality of training programmes and supervision arrangements
- Creation of new networks and enhanced quality of existing ones
- Boosting R&I capacity among participating organisations
- Increased internationalisation of participating organisations

At system level:

- Increase in international, interdisciplinary and intersectoral mobility of researchers in Europe
- More structured and innovative doctoral training, enhanced implementation of the European Charter and Code and the EU Principles for Innovative Doctoral Training
- Stronger links between the European Research Area (ERA) and the European Higher Education Area (EHEA), notably through supporting the knowledge triangle between research, innovation and education
- Improvement in the working and employment conditions for doctoral candidates in Europe
- Increased societal and economic relevance of European higher education
- Strengthening Europe's human capital base in R&I with a new generation of more entrepreneurial and highly-skilled early career researchers
- Increase in Europe's attractiveness as a leading research destination, accompanied by a rise in the numbers of talented researchers attracted and retained from abroad
- Better quality research and innovation contributing to Europe's competitiveness and growth

MARIE SKŁODOWSKA-CURIE INNOVATIVE TRAINING NETWORKS

- Budget : in 2018 – 375 millions of euros

Indicative timetable for evaluation and grant agreement signature:

For single stage procedure:

- Information on the outcome of the evaluation: Maximum 5 months from the final date for submission; and
- Indicative date for the signing of grant agreements: Maximum 8 months from the final date for submission.

Eligibility and admissibility conditions: The admissibility conditions are described in General Annex B of the work programme. The eligibility conditions for Marie Skłodowska-Curie actions apply. Please read the dedicated section in the Marie Skłodowska-Curie part of the work programme.

Evaluation criteria, scoring and threshold: The selection criteria are described in General Annex H of the work programme. The award criteria, scoring and threshold for Marie Skłodowska-Curie actions apply. Please read the dedicated section in the Marie Skłodowska-Curie part of the work programme.

Evaluation Procedure: The evaluation procedure for Marie Skłodowska-Curie actions applies. Please read the dedicated section in the Marie Skłodowska-Curie part of the work programme. The following exceptions apply:

All topics of this call	The maximum length of a proposal is 30 pages, excluding the annexes.
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The full evaluation procedure is described in the relevant [guide](#) published on the Participant Portal.