

Coordination Chemistry Inspires Molecular Catalysis

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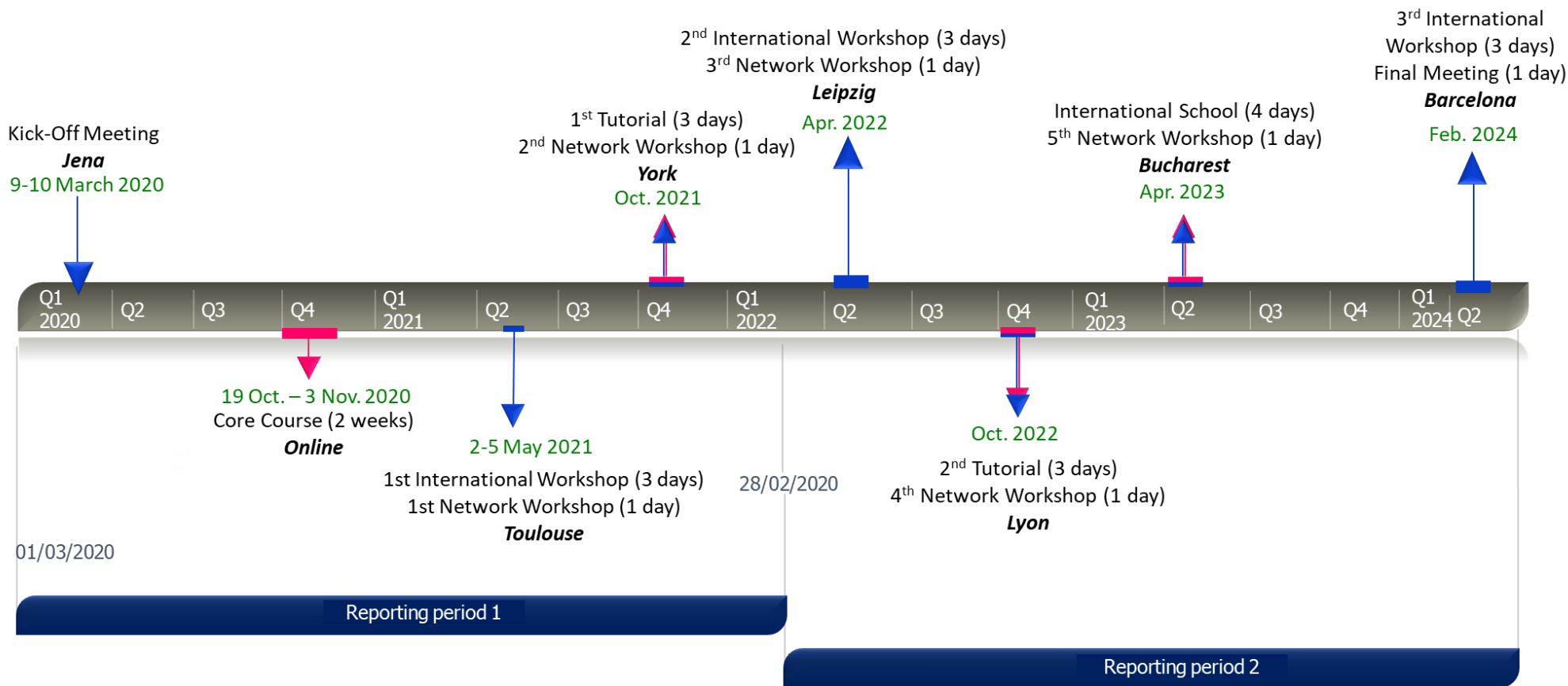
HISTORY OF CHANGES

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1.0	31 October 2020	Initial version

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OVERVIEW



- █ Theoretical trainings
- █ Active trainings and internal events

CCIMC FIRST TRAINING: CORE COURSE (19TH OCTOBER – 3RD NOVEMBER)

a. Overall organisation

The 15 ESRs have started their training with an online Core Course of two weeks (initially planned in Warsaw). This event was the opportunity to get the ESRs acquainted with the overall Network organisation, but also covered the basic theoretical content and more advanced knowledge needed to tackle their research project. These two weeks have provided scientific training in coordination chemistry and catalysis but also in transferable skills that are considered essential at the beginning of the ESRs' thesis for both knowledge transfer and personal development.

The overall Core Course was managed online via a video conferencing tool. All the teaching materials are available on an intranet platform especially created for all the training activities. Moreover, each lecture was recorded to support the ESRs in their preparation for the examination in the most efficient way. These recorded lectures have been stored on YouTube and will remain available to the ESRs for future reference. The examination has consisted of 80 multiple-choice questions on the scientific content of the Core Course.

b. Core Course Agenda

Week 1	Monday, October 19th	Tuesday, October 20th	Wednesday, October 21st	Thursday, October 22nd	Friday, October 23rd
9:00-9:55	Intro: reminder of basic coordination chemistry (Evamarie Hey-Hawkins)	Role of the ligand in catalysis: (I) catalysis with metal complexes, metal colloids and clusters, supported nano-particles and single atom concept (Vasile Parvulescu)	Introduction: principles of homogeneous catalysis (Evamarie Hey-Hawkins)	Heterogenisation of homogeneous catalysts (Crina Corbos)	Precise ligand-functionalized polymeric architectures (Rinaldo Poli)
9:55-10:50	From conventional to new coordination chemistry (Simon Duckett)	Phosphine ligands (chelate ligands, chirality, ³¹ P NMR spectroscopy...) (Evamarie Hey-Hawkins)	Role of the ligand in catalysis: (II) the stabilization of the metal by ligands, the control the reactivity through the "central" atom, and the reactivity of the ligands themselves (Vasile Parvulescu)	Metal-organic frameworks as homogeneous and heterogeneous catalysts: ways to tailor productivity and both chemo- and stereoselectivity (Vasile Parvulescu)	Silica as support for catalysts. Aerogels (Rosa M. Sebastián)
Coffee Break					
11:10-12:05	From conventional to new coordination chemistry (Simon Duckett)	Carbon-based ligands and their involvement in organometallic chemistry and catalysis (Vincent César)	Role of the ligand in catalysis: (II) the stabilization of the metal by ligands, the control the reactivity through the "central" atom, and the reactivity of the ligands themselves (Vasile Parvulescu)	Metal-organic frameworks as homogeneous and heterogeneous catalysts: ways to tailor productivity and both chemo- and stereoselectivity (Vasile Parvulescu)	Silica: as support for catalysts. Aerogels (Rosa M. Sebastián)
12:05-13:00	Role of the ligand in catalysis: (I) catalysis with metal complexes, metal colloids and clusters, supported nano-particles and single atom concept (Vasile Parvulescu)		Catalysis with d(0)-metal complexes (Matthias Westerhausen)	Precise ligand-functionalized polymeric architectures (Rinaldo Poli)	CO ₂ as building block (Sébastien Bontemps)
Lunch					
14:30-15:25	Outreach (John F. Bates) Oral presentations	Knowledge transfer Case study of Magpie - Story of a Start-up from innovation to Business (Frédéric Bruyneel)	Networking and team building (Multicultural teams -cultural dimension, managing conflict, team building-) (Frédéric Bruyneel)	Ethics in Science-The Unique Consequences of Chemistry / general sketch of professional ethics for chemist (Frédéric Bruyneel)	Student Union (SU) Selection of representatives among ESRs
15:25-16:20					
Coffee break					
16:40-17:35	Outreach (John F. Bates) Oral presentations	Knowledge transfer M&A - Case study of a Start-up integration and further technology implementation (Frédéric Bruyneel)	Networking and team building (Business networking - empowering your career/start-up (Frédéric Bruyneel)	Writing a publication (Anne Marie Caminade)	

Week 2	Monday, October 26th	Tuesday, October 27th	Wednesday, October 28th	Thursday, October 29th	Friday, October 30th	
9:00-9:55	Catalysis in special solvents: ionic liquids, scCO ₂ (John Slattery)	Bases in photochemistry (Jordi Hernando)	Computational investigation of catalytic cycles (Agustí Lledós)	Metal Nanoparticles: synthesis, characterization & application in catalysis (Karine Philippot)	Olefins oligomerization – From lab to industrial applications (Lionel Magna)	
9:55-10:50					Dendrimers: advantages of homogeneous and heterogeneous catalysis (Anne-Marie Caminade)	
Coffee Break						
11:10-12:05	Kinetics investigation of catalytic cycles (Rinaldo Poli)	Photochemistry and Photocatalysis with Transition Metal Complexes - Principles and Application (Jason Lynam)	Computational investigation of catalytic cycles (Agustí Lledós)	Olefin metathesis—versatile tool in organic synthesis (Karol & Anna)	Homogeneous catalyst design for nitrogen fixation (Antoine Simonneau)	
12:05-13:00			Catalysed hydrosilylation (Jean-Marc Frances and Raphael Mirgalet)			
Lunch					Final remarks (PMT)	
					Lunch	
14:30-15:25	Intellectual property rights (Cristina García)	Mendeley (Warsaw Univ. Library, Lilianna Nalewajska)	NMR Basic training (Simon Duckett)	Chemical risk - ESF (Jean-Marc Frances)	14:30 till needed: Supervisor Board (SB) (with coffee break)	
15:25-16:20						
Coffee break						
16:40-17:35	Bibliographic software (Sergio Castellón)	Intellectual property rights (Cristina García)	NMR Basic training (Simon Duckett)	Chemical risk - ESF (Jean-Marc Frances)		
17:35-18:30				Outreach Committee (OC)		

Week 3	Monday, November 2nd	Tuesday, November 3rd
10:30 – 12:30	Examination	
14:30-15:25		Time management - ESF (Jean-Marc Frances)
15:25-16:20		Coffee break
16:40-17:35		Time management (ESF) (Jean-Marc Frances)