**Programma del Corso Modern Trends in Chemistry, Industry and Management della laurea magistrale in Chimica Advanced Molecular Sciences (Aula 186 del Dipartimento di Chimica)**

Tutti gli studenti dell’Università di Firenze (Triennali, magistrali, Dottorandi) possono seguire i seminari. Il numero dei partecipanti in aula è limitato ma tutti possono partecipare on line. L’accesso è possibile attraverso MOODLE. Tutti coloro che hanno una matricola possono iscriversi alla piattaforma MOODLE (<https://e-l.unifi.it>) e scegliere il corso. L’accesso al corso è libero e non viene richiesta chiave di accesso.

Il corso (coordinatore Prof. Andrea Caneschi) è composto da una serie di seminari che intendono offrire una panoramica di argomenti di interesse industriale, scientifico applicativo e manageriale.

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| Massimo Chindemi | ENI | The technology leverage towards the decarbonization: the priority areas for Eni’s R&D | 07-ott | merc | 11:30-13:00 |
| Fabio Masi | IRIDRA | Biogeochemical cycles decoupling in the industrialised era - Water scarcity - POPs around the planet - The "flush & forget" approach | 09-ott | ven | 10.00-11.30 |
| Sabrina Conoci | ST Microel. | Organization and Management of the R&D Process in the Industry - 1 | 13-ott | mart | 14.00-16.00 |
| Sabrina Conoci | ST Microel. | Organization and Management of the R&D Process in the Industry - 2 | 14-ott | merc | 10.30-12.00 |
| Fabio Masi | IRIDRA | Sustainable Water Management - Nature Based Solutions - Green Infrastructures | 16-ott | ven | 10.00-11.30 |
| Laura Zanibelli | ENI | IP strategy & valorization | 19-ott | lun | 14:00-15:30 |
| Carlo Costa | ENI | IP protection: Patents and Freedom to Operate | 21-ott | merc | 11:30-13:00 |
| Gianni Girotti | Versalis / CEFIC | Bioeconomy in the Green deal and how to develop Bio-based products market  | 23-ott | ven | 09:00-11:30 |
| Laura Meda | ENI | How the electrical energy can be stored?  | 27-ott | mart | 14:00-15:30 |
| Fabio Masi | IRIDRA | Sources segregation and valorisation: resource recovery oriented sanitation | 28-ott | merc | 11.30-12.50 |
| Riccardo Po' | ENI | Fusion Energy  | 29-ott | giov | 14:00-15:30 |
| Daniele Bianchi | ENI | Biomass to biofuels: biochemical technologies | 04-nov | merc | 14:00-15:30 |
| Aldo Bosetti | ENI | Biomass to biofuels: thermochemical technologies | 06-nov | ven | 14:00-15:30 |
| Thomas Pasini | ENI | The Greenrefinery roadmap: the EcofiningTM tecnology | 11-nov | merc | 11:30-13:00 |
| Fabio Masi | IRIDRA | Nature-Based Solutions, applications worldwide: case studies | 13-nov | ven | 10.00-11.30 |
| Ernesto Roccaro | ENI | Hydrogen, a new energy vector: grey, green o blue | 18-nov | merc | 11:30-13:00 |
| Fabio Masi | IRIDRA | Sustainable Urban Drainage Systems and their role in pollution control | 20-nov | ven | 10.00-11.30 |
| Assanelli/Notari | ENI | Additives for Energy Saving Lubricants with low Enviromental Impact | 25-nov | merc | 11:30-13:00 |
| Fabio Masi | IRIDRA | Water-Food-Energy Nexus | 02-dic | merc | 11:30-13:00 |
| Johan Smets | Procter&Gamble | Consideration around the choice between an Industrial and Academic career. | tdb |   | 2 h |
| Johan Smets | Procter&Gamble | The chemistry of delivery systems and the efficiency of active delivery | tdb |   | 2 h |
| Ishi Talmon  | Technion Univ Israele | CryoTEM, from the discovery to the applications | tbd |   | 2-4 h |
| Heiko Wende | Univ Duisburg-Essen | An introduction to synchrotron-based investigation techniques for hybrid interfaces | tdb |   | 4 h |

Titoli ed abstract seminari di ENI

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| Massimo Chindemi | **The technology leverage towards the decarbonization: the priority areas for Eni’s R&D** | A strong acceleration in efficiency improvement and decarbonization represents the most important element to guide the world - and the energy sector in particular - along the trajectory outlined by a sustainable development scenario, according to the objective of the Paris Agreements. Decarbonization is a strategic priority for Eni which has as its goal zero net emissions from the upstream business by 2030.Eni research has identified priority areas of high-impact technological development for the reduction and zeroing of CO2 emissions: some technological solutions are already under development, other are close to the industrial deployment. |
| Laura Zanibelli | **IP strategy & valorization** | In the framework of technology research & development into the industry, since the beginning of the idea generation up to industrial deployment of technology, the intellectual property strategy both to manage contracts in third parties relationship , also through open innovation model, and to valorize technological results with relevant IP rights is mandatory.The focus of the lesson will regard the road map to IP strategy and valorization, to create value through intangible asset.  |
| Carlo Costa | **IP protection: Patents and Freedom to Operate** | Innovation and R&D activities are essential to any Company willing to stay ahead in highly competitive and fast developing markets; Intellectual Property protection plays a key role in gaining, maintaining and defending competitive positions through a proper development of patent portfolios and active surveillance on the ability of exploiting technologies of interest by assessing their freedom to be operated.Patents and Freedom to Operate analyses represent two main pillars in creating value from innovation. The basic understanding of how patents work represents an important skill for anyone involved in innovation processes. |
| Gianni Girotti | **Bioeconomy in the Green deal and how to develop Bio-based products market + Bio-Based Products technologies developed by Versalis**  | BBPs definitions, categorization and share will be discussed in the frame of Bioeconomy and Green Deal documents. Drivers and Barriers for BBPs will be further illustrated and discussed + The BBPs portfolio of technologies and related products will be briefly illustrated. They range from natural products, like natural rubber from alternative sources than current rubber tree, to synthetic products, like drop-in renewable platform molecules of butadiene and ethanol, as well as novel/dedicated BBPs obtained from metathesis of vegetable oils |
| Laura Meda | **How the electrical energy can be stored?**  | This seminar will provide the basic knowledge of main storage technologies (mechanical, electrical, electrochemical) in order to illustrate the advantages of electrochemical storage and different kinds of rechargeable batteries. A final hint on hydrogen storage technologies is also given |
| Riccardo Po' | **Fusion Energy**  | Basic concepts on nuclear reactions; Fusion vs. other energy sources; Fusion energy requirements; Fusion reactors; ITER vs. ARC; ARC breakthroughs. |
| Daniele Bianchi | **Biomass to biofuels: biochemical technologies** | The lesson consists of two sections:1) a general introduction of the biofuel scenario, including the impact of transportation sector on the GHG emission, the policy to promote biofuels, the biofuels pros & cons, and the sustainable biomass feedstock availability.2) an overview of the most relevant biochemical technology to produce biofuels from biomass. |
| Aldo Bosetti | **Biomass to biofuels: thermochemical technologies** | An overview of thermochemical technologies, dedicated to the transformation of biomass into biofuels, is here presented. Gasification, pyrolysis, torrefaction and hydrothermal liquefaction are analyzed and compared from the point of view of operative conditions, efficiencies and quality of final products. Examples of commercial plants using the thermochemical technologies are illustrated too. |
| Thomas Pasini | **The Greenrefinery roadmap: the EcofiningTM tecnology** | In order to fulfill the European Directives, Eni has defined a clear de-carbonization strategy: a low-carbon future stemmed from investments in energy with reduced climate-changing gas emissions. In line with the decarbonization strategy and development of renewables, since several years Eni has paired its traditional business with the production of green fuels by converting the traditional refineries of Porto Marghera and Gela into biorefineries, using the EcofiningTM proprietary technology which enables the production of different Hydrotreated Vegetable Oil (HVO) cuts, as HVO-Naphtha, HVO-LPG, HVO-Jet Fuel and HVO-Diesel, with a high level of performance through a flexible hydrogenation process with all types of biological raw materials (vegetable oils, waste oils, animal fats, by-products from the food industry, etc.). |
| Ernesto Roccaro | **Hydrogen, a new energy vector: grey, green o blue** | Following the institution of the European Clean Hydrogen Alliance, Hydrogen is destined to play a key role as clean and efficient fuel, as long as its production shifts from conventional high-polluting “grey” to more environmental friendly “blue” and “green” hydrogen production methods. |
| Assanelli/Notari | **Additives for Energy Saving Lubricants with low Enviromental Impact** | The technological evolution of lubricants is oriented to products that contribute to reduce CO2 emissions by improving energy efficiency. In this context the lubricant’s additives play a crucial role. This speech will cover the role of lubricant additives with particular attention to those on which Eni Research is focusing |