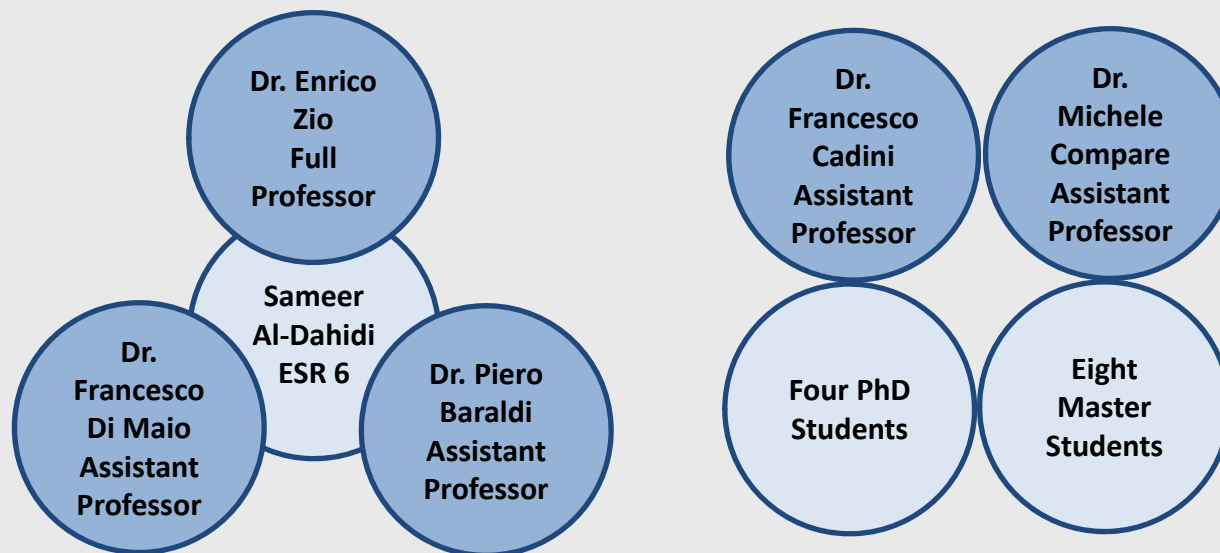# Contribution of Politecnico Di Milano to INNHF

MID-TERM REVIEW MEETING
Torino, 31st October 2013

The research team

- **Politecnico Di Milano**
- **Department:** Energy
- **Laboratory:** Laboratory of Signal and Risk Analysis (LASAR)
- **Website:** http://lasar.cesnef.polimi.it/

The research team

- ## Areas of Expertise: Advanced RAMS/Development of:

  - Computational methods and models for health management of complex industrial systems and plants.

  - Probabilistic and possibilistic models for the computation and optimization of the reliability, availability, safety and risk of complex industrial systems.

  - Complex system theory and stochastic simulation models for the evaluation of the reliability, safety and vulnerability of critical infrastructures and complex network system.

  - Models for the evaluation of the operator performance within a HRA for industrial risk assessment.

  - Computational methodology for the performance assessment of a radioactive waste repository and of stochastic/analytic models for the radioactivity dispersion in different mediums .

The research team

- ## Collaborations:

- **Description of the training opportunities that the company/university offers to its fellows:**

Course title
Master Course: Reliability, Safety and Risk Analysis A+B, [**March – June**] **2013, 2014, 2015**
PhD Course: Risk and Uncertainty Modelling, **September 2013**
PhD Course: Advances Topics in Risk and Reliability Analysis of Energy Systems, [**January – February**] **2013 – 2014 - 2015**
Master Course: Nuclear Power Plants Operation and Maintenance, [**March – June**] **2013, 2014, 2015**
Continuing education course "Advanced methods for reliability, availability, maintainability, diagnostics and prognostics of industrial equipment", **21st – 24th October, 2013 – 2014 - 2015**
International Conference: Prognostics and System Health Management 2013 Conference (PHM 2013), **Milan, Italy, September 8th-11st, 2013**
Tutorials track: Diagnostics, Prognostics and Health Management (PHM), and Condition Based Maintenance (CBM), **8th September, 2013**

- **Contributions to the Network training moments**

Event	Description
Zeroing Course 22nd – 25th January, 2013 Turin, Italy **(POLITO)**	Basis of Reliability and Maintainability Assessment: **Maintenance: basic concepts 1 & 2**
WP3 Workshop 22nd – 25th April, 2013 Kragujevac, Serbia **(UKRA)**	1. Maintenance planning: Condition-Based Maintenance (CBM), Fault Detection (FD), Auto-associative Kernel Regression (AAKR) 2. WP5 (Categorisation of current issues – maintenance operations) planned activities and possible contributions
WP5 Workshop **Date: 2014** **Location: to be decided**	Categorization of current issues, accidents and shortcomings stemming from the overlooking of human and Organizational factors and from the superficial assessment of maintenance operations
School **Date: 2014** **Location: to be decided**	Maintenance Engineering

- **Objectives within the INNHF project and issues: comments and remarks:**

Revisions of standards currently used for maintenance in industrial companies
Analysis of maintenance practice in industrial companies and Categorization of current issues
Development of methods for maintenance engineering in industrial plants
Testing and validation of the developed methods on real industrial case studies
Definition of an advanced methodology for maintenance engineering and its integration in existing standards
Dissemination of the developed methods and obtained results

Disseminate knowledge in the field of maintenance engineering to the INNHF ER and ESR, and beyond