

# PhD In Mechanical Engineering

## Research Area n. 5-Materials

### Specific Research Subject: **ADVANCED MATERIALS IN THE RAIL SECTOR**

#### Cluster Tecnologico Nazionale\_Tesys Rail

<b>Scholarships and Financial support</b>	
Monthly net income of PhD scholarship (max 36 months)	€ 1200 (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	1
Beginning of PhD	1/5/2015
Deadline for application	23/03/2015
<b>Context of the research activity</b>	
Motivations and objectives of the research in this field	The motivation of this research is based on an analysis of the state of the art and current trends in railway research and involved an evaluation of processes, good practices, and competencies in the field. The discussion with/among companies resulted in a qualitative and quantitative evaluation of the formation/training needs and the development of human resources aimed at supporting technological and/or organizational innovation in the framework of the research project.
Methods and techniques that will be developed and used to carry out the research	Three modules are available: <i>Module A:</i> Basic Knowledge on the topic <i>Module B:</i> Practical skills development carried out in companies or research laboratories chosen from among the actors of the project. <i>Module C:</i> aimed at developing relational and organizational skills (the so-called soft skills).

Educational objectives	<ul style="list-style-type: none"> <li>• Considering how and where to exploit innovative materials, specifically in the rail sector.</li> <li>• Learn how to evaluate the properties of interest for selected materials taking into account the material-processing-property correlation.</li> <li>• Assessment of the effects of the application of innovative materials on component performance.</li> </ul>
Job opportunities	The trainee has real opportunities to enter the labor market or in companies where they carried out the training on the job or in other cluster companies.
Composition of the research group	1 Full Professors 1 Associated Professors 1 Assistant Professors 4 PhD students 1 contracted researchers
Names of the research directors	Ferruccio Resta
E-mail address, phone number and web-page	<a href="mailto:Ferruccio.resta@polimi.it">Ferruccio.resta@polimi.it</a> +390223998433
List of 5 Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	1.UNIFI 2.UNINA 3.RFI 4.THALES 5.POLIMI. 6.PROJECT s.r.l. 7 Fondazione Politecnico 8 VDS
<b>Additional support</b>	
<u>Educational activities</u> (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student per year	2nd year: 1.370 euro per student 3rd year: 1.370 euro per student
<u>Teaching assistanship:</u> availability of funding in recognition of supporting teaching activities by the PhD student	There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.
<u>Computer availability:</u>	1 <sup>st</sup> year: <i>individual use</i> 2 <sup>nd</sup> year: <i>individual use</i> 3 <sup>rd</sup> year: <i>individual use</i>
<u>Desk availability:</u>	1 <sup>st</sup> year: <i>individual use</i> 2 <sup>nd</sup> year: <i>individual use</i> 3 <sup>rd</sup> year: <i>individual use</i>