

Politecnico di Milano

PhD in Materials Engineering

(Research Area Materials Engineering)

Research Title: (Development of Materials and Technologies for Professional Appliances)

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€ 1.300 (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	1
Context of the research activity	
Motivations and objectives of the research in this field	Professional food processing appliances are, with respect to residential ones, characterized by high productivity and intense use. Their development requires a correct functional analysis and material selection, especially when non-conventional food processing processes are applied. During their lifetime, moreover, they experience specific durability problems related to food/materials and cooking technique/materials. Along this direction, both a specific characterization of materials in such combined harsh environments and tools for new materials durability prediction are required.
Methods and techniques that will be developed and used to carry out the research	The research will focus on problems related to materials durability in different harsh environments and will be based on experimental approaches. Student will be in charge of test materials in harsh condition, predict and evaluate the response, study possible solution/alternative. Students will be actively involved in the R&D Electrolux Professional Team in by cooperating with the research group, spending a significant part of their time and experimental activity in labs located in Pordenone.
Educational objectives	1. Acquiring competencies, both theoretical and experimental on material durability in harsh

	environment (i.e. strong acid/base, food interaction, EM fields). 2. Acquiring skills on material selection processes for professional appliances
Job opportunities	<ul style="list-style-type: none"> _Contributing to the development of know-how in material selection. _Taking part to R&D projects aimed at developing technologies based on material science. _Keeping relationships with different technical department of the corporation. _Linking its figure with professional users/ environment of products usage.
Composition of the research group	www.chem.polimi.it/research/materials/ Number of Full Professors: 2 Number of Associated Professors 2 Number of Assistant Professors 3 Number of Post-Docs 2 Number of PhD students 2 Number of contracted researchers 1
Names of the research directors	<i>Prof. Luigi De Nardo</i>
E-mail address, phone number and web-page	Luigi.denardo@polimi.it 0223993161 www.chem.polimi.it
List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	1. Electrolux professional
Additional support	
<u>Housing:</u> financial aid per PhD student per year (gross amount)	<u>No additional support</u>
<u>Funding for educational activities</u> (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): funding per PhD student per year	1 st year: no additional support 2 nd year: 1370 euros per student 3 rd year: 1370 euros per student For students with scholarship as from the second year, in addition to the scholarship and within the financial resources recorded in the budgets of the parties accredited according to current legislation, each PhD student is paid a sum for research work in Italy and abroad commensurate with the type of course and in any case a sum no lower than 10% of the amount of the minimum ministerial scholarship.
<u>Teaching assistantship:</u> availability of funding in recognition of support to 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 st year: individual use 2 nd year: individual use 3 rd year: individual use
<u>Desk availability:</u>	1 st year: shared use

	2 nd year: <i>shared use</i> 3 rd year: <i>shared use</i>
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