



PhD in INGEGNERIA AMBIENTALE E DELLE INFRASTRUTTURE / ENVIRONMENTAL AND INFRASTRUCTURE ENGINEERING - 39th cycle

Research Area n. 3 - Environmental and Hydraulic Engineering and Geomatics

**PNRR 117 Research Field: INNOVATIVE TECHNOLOGIES AND PRACTICES FOR THE
SUSTAINABLE MANAGEMENT OF WASTEWATER TREATMENT PLANTS: CARBON
RECOVERY AND REDUCTION OF GREENHOUSE GASES**

Monthly net income of PhDscholarship (max 36 months)

€ 1400.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

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| Motivation and objectives of the research in this field | The research is intended for providing innovative technologies and practices that could determine groundbreaking advances in the water sector for addressing current challenges towards the achievement of sustainable and circular economy goals, in line with recent EU regulations related to EU Green Deal. |
| Methods and techniques that will be developed and used to carry out the research | The research will be based on an integrated approach based on multi-scale (from lab- to pilot, from reactor to plant-wide) experimental and modelling activities, covering all the required aspects for the development of innovative wastewater treatment processes from the proof-of-concept to the validation in relevant environment, including the assessment of impacts. |
| Educational objectives | (i) state-of-the-art knowledge and application of experimental and modelling techniques related to wastewater treatment, (ii) identification and assessment of innovative wastewater treatment processes, (iii) application of innovative wastewater treatment in multi-scale experimental units (reactor design and operation, piloting) and related description via modelling techniques |



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| | aimed at process scale-up and optimization. |
| Job opportunities | High-specialization plant manager or R&D specialist operating in water utilities or water sector industry, researcher at public or private research institutions. |
| Composition of the research group | 1 Full Professors 0 Associated Professors 2 Assistant Professors 3 PhD Students |
| Name of the research directors | Dr. Andrea Turolla |

| Contacts | |
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| Dr. Andrea Turolla email: andrea.turolla@polimi.it phone: +39 02 2399 6417 | |

| Additional support - Financial aid per PhD student per year (gross amount) | |
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| Housing - Foreign Students | -- |
| Housing - Out-of-town residents (more than 80Km out of Milano) | -- |

| Scholarship Increase for a period abroad | |
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| Amount monthly | 700.0 € |
| By number of months | 6 |

| National Operational Program for Research and Innovation | |
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| Company where the candidate will attend the stage (name and brief description) | Alfa Varese - https://www.alfavarese.it/ |
| By number of months at the company | 6 |
| Institution or company where the candidate will spend the period abroad (name and brief description) | To be defined. Possibly, one of the institutions having a strong interaction with the research group (e.g. Universidad de Santiago de Compostela, University of Queensland, University of Ghent) |
| By number of months abroad | 6 |

| Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information |
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| <p><u>Educational activities</u> (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences): the Ph.D. course supports the educational activities of its Ph.D. students with an additional funding equal to 10% of the scholarship, starting from the first year.</p> <p><u>Teaching assistantship</u> (availability of funding in recognition of support to teaching activities by the PhD student): Ph.D. students are encouraged to apply, upon prior authorization, to the calls to</p> |



support teaching activities at the undergraduate and Master levels at Politecnico, being paid for that. The teaching assistantship will be limited up to about 80 hours, maximum half of them devoted to teaching and classroom activities and the rest to support classworks and exams.

Computer availability and desk availability: each Ph.D. student has his/her own computer for individual use. Each Ph.D. student has his/her own desk, cabinet and locker.