



curriculum vitae

PERSONAL INFORMATION

Surname	Pierini
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Nationality	Italian
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Date of birth	23/09/1996
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Education and training	After graduating from high school (Liceo Scientifico “Leon Battista Alberti” - Napoli, Mark: 96/100, A.S. 2014/15) I started my Chemistry studies at the University of Naples “Federico II”. I then continued my career in Industrial Chemistry at the “Alma Mater Studiorum” University of Bologna. On November 2025, I started my PhD studies at the Department of Energy of the Politecnico di Milano, focusing my work on an experimental investigation on the fluid dynamics developing within a large-scale bubble column for the absorption of carbon dioxide with ionic liquids.
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• Date (from – to)	A.A. 2021-22 – 2023-24
• Name and type of organisation providing education and training	Alma Mater Studiorum – Università degli Studi di Bologna
Duration of the program of study	2 years
• Principal subjects/occupational skills covered	Industrial Chemistry
• Title of qualification awarded	Master of Science in Industrial Chemistry (Laurea Magistrale in Chimica

	Industriale, Classe LM-71)
Final mark obtained	110/110

Graduation thesis

Title	Experimental characterization of a stirred vessel for mixing applications of Pluronic aqueous solutions
Language	English
Supervisor	Prof. Alessandro Paglianti
Thesis Summary	The project was focused on the experimental investigation of the flow field of two aqueous solutions of Pluronic F68 by means of the Stereo-Particle Image Velocimetry (PIV), a laser-based velocimetry technique which allows to obtain a global view of instantaneous velocities of a fluid both in two and three dimensions. To achieve a homogeneous mixing of the solutions at 45 and 50 % w/w concentration, due to their noticeably high viscosities at the temperature of analysis, the samples were stirred in a cylindrical vessel by means of a small-clearance impeller Helical Ribbon. The experiments were performed in two different measuring configurations and at different stirring speeds, leading to the obtainment of distinct flow fields for each operational condition. The high viscosity of the samples proved to be responsible for the almost linear scaling of the fluid dynamical conditions of the fluids upon increasing stirring speed, although being in laminar regime. Furthermore, an investigation was performed to assess the possible development of macro-instabilities within the samples, due to their effects in the mixing of stirred fluids.

• Date (from – to)	A.A. 2015-16 - 2019-20
• Name and type of organisation providing education and training	Università degli Studi di Napoli “Federico II”
Duration of the program of study	3 years
• Principal subjects/occupational skills covered	Chemistry
• Title of qualification awarded	Bachelor of Science in Chemistry (Laurea di I Livello in Chimica, Classe L-27)
Final mark obtained	103/110

Under-graduate thesis

Title	Studio di fosforilazione di polisaccaridi
Language	Italian
Supervisor	Prof. Emiliano Bedini
Thesis Summary	In this project, the phosphorylation of two polysaccharides (chondroitin and curdlan) was performed following a novel catalytic and chemoselective synthetic strategy, in order to obtain novel biomaterials potentially interesting in biomedical and pharmaceutical fields. The preliminary step of the synthesis consisted in the installation of protective groups on both substrates to favour the attack of the phosphoryl group in a specific position of the polysaccharide chain. Further reacting tetrabutylammonium hydrogen sulfate (TBAHS) and the potassium salt of phosphoenol pyruvic acid (PEP-K) – the catalyst and the phosphoryl donor, respectively – led to the formation of the active species in the actual phosphorylation. To assess whether the functionalization actually took place, ¹H-NMR and ³¹P-

	NMR spectra of the reaction products were registered for both substrates. In particular, from their analysis it was clear that the phosphorylation proved unsatisfactory when applied to the curdlan, whereas it was a success for the two chondroitin derivatives, since an actual modification in the polysaccharide structure with phosphorylated functionalities occurred.
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certifications

GRE	-
GMAT	-
Certifications of language knowledge	ETS - TOEIC (Test of English for International Communication - Listening and Reading Test) Test date: 17/09/2025; Client/Institution: EAS Milano - TECNITRAVEL Italy Score Report: Listening: 485/495, Reading: 485/495 Total Score: 970/990

Personal skills and competences
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Mother tongue

Italian

Other language(s)

	English	Spanish
• reading	excellent	good
• writing	excellent	good
• speaking	excellent	excellent

Social skills and competences

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| <ul style="list-style-type: none">• Easy adaptability in international environments and ability in organising a suitable and sane group environment, further enhanced during a 6-months experience abroad in South America |
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Organisational skills and competences

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| <ul style="list-style-type: none">• Expertise in planning the steps of the experimental campaigns of both thesis projects of my Academic career |
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Technical skills and competences

During my studies and my degree theses I acquired the following technical skills:

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| <ul style="list-style-type: none">• Use of Microsoft Office (Word, Excel, PowerPoint)• Programming in MATLAB• Use of the Grapher-Surfer software graphics (Golden Software)• Processing of fluid dynamic data using Stereo-PIV (Dynamic Studio)• Processing of experimental data (Origin)• Rheological analysis of viscoelastic fluids (MCR-92 Rheometer)• Investigation and analysis of NMR spectra (Mestrenova)• Creation of technical graphs and flow sheets (ConceptDraw)• Creation of chemical reactions schemes (ChemDraw)• Experienced ability in the handling of chemical substances• Experienced ability in performing separation techniques (centrifugation, filtration, distillation, dialysis, liquid-liquid extraction, TLCs and column chromatography)• Ability in managing the mixing conditions of a laboratory-scale process |
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Artistic skills and competences

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| <ul style="list-style-type: none">• Advanced scientific writing and technical skills in creating visual schemes for projects and presentations both effective and captivating• Writing of short-stories and compositions mainly centered on the concept of the inner self (in several of its variegated depictions)• Drawing of very different kind and accuracy in trait (cartoon-like, lineal, more geometrical-shaped) |
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Other skills and competences

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| <ul style="list-style-type: none">• Developed problem-solving capabilities and critical thinking enhanced during my Academic career |
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