

# Francesco Serse

Curriculum vitae et studiorum

## Personal Information and Contacts

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## Education

- Nov 2020 – April 2025: Enrolled in the 36<sup>th</sup> cycle of Industrial PhD at the Chemistry, Materials and Chemical Engineering Department in Politecnico di Milano. Project title: *“Molecular modelling of solvent effects on free radical polymerization processes”*.
- Sept 2018 – Sept 2020: Master (MSc) degree in Chemical Engineering at Politecnico di Milano. Thesis title: *“First principles assessment of the analogy between gas-phase and gas-solid activation energies of hydrogen abstraction reactions on polycyclic aromatic hydrocarbons.”*.
- Sept 2014 – Mar 2018: Bachelor (BSc) degree in Chemical Engineering at La Sapienza, Università di Roma. Thesis title: *“Ultrasound-induced transesterification of vegetable oils for biodiesel production”*.

## Language Skills

- English UK: IELTS certificate (7.0).
- German: Goethe Zertifikat B1.

## Awards, Scholarships

- PhD Scholarship by the Italian Ministry of Education (MIUR) – September 2020
- Awarded the ISCRA C project HP10C2KP11 – January 2024

## Presentations at International Conferences/Workshops

7 oral presentations delivered between 2021 and 2024.

## Research Skills and Experience

- Expertise with a range of analytical software: Matlab, Python, Excel.
- Proficient knowledge of Windows and Linux Operating Systems.
- Excellent knowledge of Microsoft Office (Word, Power Point, Excel, etc.).
- Expertise with molecular simulation software: Molpro, Gaussian, Gromacs, Cp2k, Plumed, LAMMPS.

## Teaching and Related Experience

Teaching collaborator of statistics for undergraduates: delivered practical lectures and prepared/revised exams.

## Supervision and Management

Tutoring of 4 Master students. Scheduled regular meetings and offered guidance in the research activity. Reviewed and supervised the writing of Master theses.

## Peer-Reviewed Academic Publications (corresponding author\*)

F. Serse, Z. Ding, M. Bracconi, M. Maestri, A. Nobili, C. Giudici, A. Frassoldati, T. Faravelli, A. Cuoci, M. Pelucchi\*, A comprehensive kinetic framework for solid carbon deposition and hydrogen production from the pyrolysis light

hydrocarbons streams, Carbon Trends, Volume 11, 2023, 100263, ISSN 2667-0569,  
<https://doi.org/10.1016/j.cartre.2023.100263>.

**F. Serse\***, A. Bjola, M. Salvalaglio\*, and M. Pelucchi, Unveiling Solvent Effects on  $\beta$ -Scissions through Metadynamics and Mean Force Integration, Journal of Chemical Theory and Computation 2024 20 (14), 6253-6262,  
<https://doi.org/10.1021/acs.jctc.4c00383>.

**F. Serse \***, M. Salvalaglio, M. Pelucchi\*, First principles assessment of solvent induced cage effects on intramolecular hydrogen transfer in the free radical polymerization of acrylates. Physical Chemistry Chemical Physics, 2025, 1463-9076, <http://dx.doi.org/10.1039/D4CP04415K>.

A. Locaspi, M. Ferri, **F. Serse**, M. Maestri, M. Pelucchi, Chapter Two - Chemical kinetic of catalytic/non-catalytic pyrolysis and gasification of solid plastic wastes, Editor(s): Davide Moscatelli, Matteo Pelucchi, Advances in Chemical Engineering, Academic Press, Volume 60, Issue 1, 2022, Pages 21-76, ISSN 0065-2377, ISBN 9780323957700,  
<https://doi.org/10.1016/bs.ache.2022.09.002>.

E. Busillo, A. Nobili, **F. Serse**, M.P. Bracciale, P. De Filippis, M. Pelucchi, B. de Caprariis, Turquoise hydrogen and carbon materials production from thermal methane cracking: An experimental and kinetic modelling study with focus on carbon product morphology, Carbon, Volume 225, 2024, 119102, ISSN 0008-6223,  
<https://doi.org/10.1016/j.carbon.2024.119102>.

C. Giudici, **F. Serse**, A. Nobili, M. Bracconi, M. Maestri, M. Pelucchi, Chapter One - Catalytic and non-catalytic chemical kinetics of hydrocarbons cracking for hydrogen and carbon materials production, Editor(s): Matteo Pelucchi, Matteo Maestri, Advances in Chemical Engineering, Academic Press, Volume 61, 2023, Pages 1-62, ISSN 0065-2377, ISBN 9780323957748, <https://doi.org/10.1016/bs.ache.2023.06.001>.

## **Academic Publications Under-Review or in Preparation (corresponding author\*)**

**F. Serse \***, S. Trespi, M. Pelucchi, M. Paloni, M. Salvalaglio, M. Mazzotti, First principles assessment of solvent induced cage effects on intramolecular hydrogen transfer in the free radical polymerization of acrylates.

## **Other Research-Related Activities**

Visiting researcher at Dept. of Chemical Engineering of University College London (UCL), London, United Kingdom.  
Advisor: Dr. Matteo Salvalaglio.