

Curriculum Vitae

MATTEO PELUCCHI

1. PERSONAL DATA

Name: Matteo Pelucchi
Date of birth: 19th May 1988
Place of birth: Vaprio D'Adda (Milano, Italy)
Work Address: CRECK Modeling Lab, Department of Chemistry, Materials, and Chemical Engineering "G. Natta", Politecnico di Milano, Piazza Leonardo Da Vinci 32, 20133 Milano (MI)
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2. CURRENT AND PREVIOUS POSITIONS

2017-Present

Assistant Professor at Politecnico di Milano,

Department of Chemistry, Materials and Chemical Engineering

Scientific Disciplinary Sector: ING-IND/26 *"Teoria dello sviluppo dei processi chimici"- "Theory of development of chemical processes"*

2016-2017

Post-doctoral researcher at Politecnico di Milano

Department of Chemistry, Materials and Chemical Engineering

3. EDUCATION

2013-2016

Ph.D. (cum laude) in Industrial Chemistry and Chemical Engineering at Politecnico di Milano

Graduation Date: 15th February 2017.

Title of the Thesis: *"Development of kinetic mechanisms for the combustion of renewable fuels."*

Advisor: Prof. Tiziano Faravelli.

2010-2012

Master Degree (cum Laude) in Chemical Engineering at Politecnico di Milano

Graduation Date: 22nd April 2013.

Final Mark: 110/110 cum laude.

Title of the Thesis: “*Experimental and kinetic modelling study of n-butanol and n-pentanol auto-ignition in a shock tube*”.

Advisors: Prof. Tiziano Faravelli, Prof. Eliseo Ranzi, Prof. Henry J. Curran.

2007-2010

Bachelor Degree in Chemical Engineering at Politecnico di Milano

Graduation Date: 21st September 2010

Final mark: 101/110.

Title of the Thesis: “*Modelli di surrogati per combustibili aeronautici*”-“*Surrogate fuels for avio applications*”

Advisors: Prof. Tiziano Faravelli, Prof. Alberto Cuoci.

4. AWARDS and GRANTS

2019

Front cover of *Reaction Chemistry and Engineering* with the paper titled “Detailed kinetics of substituted phenolic species in pyrolysis bio-oils”

2018

Front cover of *Physical Chemistry Chemical Physics* issue “Kinetics in the Real World” with the paper titled “H-Abstraction reactions by OH, HO₂, O, O₂ and benzyl radical addition to O₂ and their implications for kinetic modelling of toluene oxidation”

2017

2nd position, PhD Award

Issued by the Doctoral School in Industrial Chemistry and Chemical Engineering, Politecnico di Milano.

2013-2016

PhD scholarship

Issued by Italian Ministry of Education (MIUR), Italy

2012-2013

Master Degree scholarship for thesis projects abroad – National University of Ireland Galway (Prof. H. Curran)

Issued by Politecnico di Milano

5. VISITING POSITIONS

2016 (January-August)

Visiting PhD at Argonne National Laboratory, IL, USA. Chemical Science and Engineering Division

Supervisor: Dr. S.J. Klippenstein

2015 (February)

Visiting PhD Student at National University of Ireland Galway, School of Chemistry

Supervisor: Prof. H.J. Curran

2013 (October)

Visiting PhD Student at National University of Ireland Galway, School of Chemistry

Supervisor: Prof. H.J. Curran

2012 (March-September)

Visiting Master Student at National University of Ireland Galway, School of Chemistry

Supervisor: Prof. H.J. Curran

6. TEACHING ACTIVITIES

2018-Present: Lecturer of "*Dynamics and Control of Chemical Processes*"

Master Degree in Chemical Engineering and Automation Engineering.

2018-2019: Teaching assistant of "*Sperimentazione Industriale*" (*Error propagation and analysis for industry*)

Bachelor Degree in Chemical Engineering

2013-Present: Teaching assistant of "*Principi di Combustione*" (*Combustion fundamentals*)

Bachelor Degree in Chemical Engineering

2014-2016: Teaching assistant of "*Combustion and Pollutant Formation*"

Master Degree in Chemical Engineering

2013-Present: Supervision of M.Sc. and B.Sc. students.

Advisor or co-advisor of 7 M.Sc. students in Chemical Engineering

Advisor or co-advisor of 15 B.Sc. students in Chemical Engineering.

7. INVITED TALKS/LECTURES and Conference presentations.

8th July 2015: Young Researchers Colloquium, Clean Air Conference 2015, Lisbon, Portugal
"*Detailed kinetic mechanisms for practical applications: new reaction classes and model reduction*"

Over 20 oral presentations at international conferences and meetings.

Over 10 poster presentations at international conferences and meetings.

8. SCIENTIFIC INTERESTS

My research activity is focused on the development of chemical kinetic models for the pyrolysis and combustion of gas, liquid and solid fuels. In particular:

1. Detailed kinetic mechanisms of homogeneous gas phase reactions and theoretical calculations

The activity is focused on the development, iterative validation and improvement of detailed kinetic mechanisms describing the **pyrolysis, oxidation and combustion of hydrocarbon and oxygenated fuels**. A particular focus is devoted to the formation of **PAHs** and of **pollutants** such as **NO_x** and carbonaceous particles (**soot**). To achieve the goal of modeling fuels combustion and pollutant formation, **theoretical ab initio and DFT methods** are used to estimate rate constant and kinetic parameters. My research also deals with the development of **tools for the automatic theoretical calculation of rate constants** for various reaction classes.

2. Theoretical calculations of heterogeneous gas/solid interactions

The focus of this activity is the estimation of accurate reaction parameters for **gas solid interactions using DFT**. This activity involves different processes such as thermal conversion of coal and biomass, graphene and carbonaceous materials synthesis, CVD and CVI, soot formation/oxidation.

3. Automatic tools for mechanism development and comparison

Recently my research efforts have also been devoted to the implementation of **automatic validation tools** based on **curve comparisons** algorithm to support the iterative development of kinetic models. Such tools have been implemented in automatic routines for kinetic mechanism development and analysis also developed during the last 2 years of activity.

4. Data management, standardization and database development

I am involved in activities related to the **standardization of combustion experimental data** as well as in the development of **data repositories**. In particular, I am part of the Data Exchange task force within the Smartcats COST Action of the EU and involved in the Rapid Compression Machine and Shock Tube Initiatives.

9. PARTICIPATION IN PUBLIC AND INDUSTRIAL RESEARCH PROJECTS

2019-Present.

Individuazione processo per eliminazione Cloro da Plasmix fino a livello di 5-10 ppm. ODL 4310328956, Politecnico di Milano/ENI Spa.

2018-Present.

DOE-Exascale Computing Project: automatic rate constant calculations and automatic model development and validation tools.

2018-Present.

2nd initiative of the RCM/ST Network. Chair of WP#3 on Data Exchange.

2018-Present.

Computational Chemistry Consortium, Converge Science Inc. Madison-Wisconsin, USA.

2017-Present.

JETSCREEN (JET Fuel SCREENing and Optimization), H2020 European Project [ID No. 723525]

2017-Present.

Residue2Heat (Renewable residential heating with fast pyrolysis bio-oil), H2020 European Project [ID No. 654650]

2017-Present.

IMPROOF (Integrated model guided process optimization of steam cracking furnaces, H2020 European Project [ID No. 723706]

2015-Present.

SMARTCATs COST ACTION CM1404. Detailed kinetic mechanisms development and “task force” on combustion data standardization.

10. BIBLIOMETRY (18th July 2019)

Scopus Papers: 32, Citations: 364, h-index: 10

Google Scholar Papers: 35, Citations: 446, h-index: 11

11. PUBLICATIONS

2019

1. **M. Pelucchi**, C. Cavallotti, A. Cuoci, T. Faravelli, A. Frassoldati, E. Ranzi “Detailed kinetics of substituted phenolic species in pyrolysis bio-oils”, *Reaction Chemistry and Engineering*, 2019, Royal Society of Chemistry. DOI: [10.1039/C8RE00198G](https://doi.org/10.1039/C8RE00198G)
2. S. Namysl, **M. Pelucchi**, O. Herbinet, A. Frassoldati, T. Faravelli, F. Battin-Leclerc “A first evaluation of butanoic and pentanoic acid oxidation kinetics”, *Chemical Engineering Journal*, 2019, Elsevier. DOI: [10.1016/j.cej.2019.05.090](https://doi.org/10.1016/j.cej.2019.05.090).
3. **M. Pelucchi**, A. Stagni, T. Faravelli “Addressing the complexity of combustion kinetics: Data management and automatic model validation” in “Mathematical Modelling of Gas-Phase Complex Reaction Systems: Pyrolysis and Combustion” *Computer Aided Chemical Engineering*, 2019, Elsevier. DOI: [10.1016/B978-0-444-64087-1.00015-2](https://doi.org/10.1016/B978-0-444-64087-1.00015-2)
4. C. Cavallotti, **M. Pelucchi**, Y. Georgievskii, S.J. Klippenstein, “ESTokTP: Electronic Structure to Temperature and Pressure Dependent Rate Constants; A Code for Automatically Predicting the Thermal Kinetics of Reactions”, *Journal of Chemical Theory and Computation*, 2019, American Chemical Society. DOI: [10.1021/acs.jctc.8b00701](https://doi.org/10.1021/acs.jctc.8b00701)
5. W. Pejpichestakula, A. Cuoci, A. Frassoldati, **M. Pelucchi**, A. Parente, T. Faravelli. “Buoyancy effect in sooting laminar premixed ethylene flame”, *Combustion and Flame*, 2019, Elsevier. DOI: [10.1016/j.combustflame.2019.04.001](https://doi.org/10.1016/j.combustflame.2019.04.001).
6. M. Keçeli, S. Elliott, Y-P Li, M. Johnson, C. Cavallotti, Y. Georgievskii, W.H. Green, **M. Pelucchi**, J.M. Wozniak, A.W. Jasper, S.J. Klippenstein “Automated computational thermochemistry for butane oxidation: A prelude to predictive automated combustion kinetics” *Proceedings of the Combustion Institute*, 2019, Elsevier
DOI: [10.1016/j.proci.2018.07.113](https://doi.org/10.1016/j.proci.2018.07.113)
7. W. Pejpichestakul, E. Ranzi, **M. Pelucchi**, A. Frassoldati, A. Cuoci, A. Parente, T. Faravelli, “Examination of a soot model in premixed laminar flames at fuel-rich conditions” *Proceedings of the Combustion Institute*, 2019, Elsevier
DOI: [10.1016/j.proci.2018.06.104](https://doi.org/10.1016/j.proci.2018.06.104)
8. **M. Pelucchi**, S. Namysl, E. Ranzi, A. Frassoldati, O. Herbinet, F. Battin-Leclerc, T. Faravelli, “An experimental and kinetic modelling study of n-C4C6 aldehydes oxidation in a jet-stirred reactor” *Proceedings of the Combustion Institute*, 2019, Elsevier
DOI: [10.1016/j.proci.2018.07.087](https://doi.org/10.1016/j.proci.2018.07.087)
9. C. Cavallotti, **M. Pelucchi**, A. Frassoldati, “Analysis of acetic acid gas phase reactivity: Rate constant estimation and kinetic simulations” *Proceedings of the Combustion Institute*, 2019, Elsevier

[DOI: 10.1016/j.proci.2018.06.137](https://doi.org/10.1016/j.proci.2018.06.137)

10. G. Mairinger, A. Frassoldati, A. Cuoci, **M. Pelucchi**, E. Pucher, K. Seshadri “Experimental and computational investigation of autoignition of jet fuels and surrogates in nonpremixed flows at elevated pressures” *Proceedings of the Combustion Institute*, 2019, Elsevier. [DOI: 10.1016/j.proci.2018.06.224](https://doi.org/10.1016/j.proci.2018.06.224)
11. G. Bagheri, M. Lubrano Lavadera, E. Ranzi, **M. Pelucchi**, P. Sabia, M. de Joannon, T. Faravelli. “Thermochemical oscillation of methane MILD combustion diluted with N₂/CO₂/H₂O” *Combustion Science and Technology*, 2019. [DOI: 10.1080/00102202.2018.1452411](https://doi.org/10.1080/00102202.2018.1452411)

2018

12. Z-B. Ding, E. Di Marco, **M. Pelucchi**, T. Faravelli, M. Maestri, “First-principles assessment of the analogy between gas-phase and gas-solid H-abstraction reactions at graphene edges” *Chemical Engineering Journal*, 2018, Elsevier. [DOI: 10.1016/j.cej.2018.08.077](https://doi.org/10.1016/j.cej.2018.08.077)
13. M. Lubrano Lavadera, Y. Song, P. Sabia, O. Herbinet, **M. Pelucchi**, A. Stagni, T. Faravelli, F. Battin-Leclerc, M. de Joannon, “Oscillatory behavior in methane combustion: on the influence of the operating parameters” *Energy & Fuels*, 2018, American Chemical Society. [DOI: 10.1021/acs.energyfuels.8b00967](https://doi.org/10.1021/acs.energyfuels.8b00967)
14. **M. Pelucchi**, C. Cavallotti, T. Faravelli, S.J. Klippenstein. “H-Abstraction reactions by OH, HO₂, O, O₂ and benzyl radical addition to O₂ and their implications for kinetic modelling of toluene oxidation” *Physical Chemistry Chemical Physics*, 20, 10607-10627, 2018. [DOI: 10.1039/C7CP07779C](https://doi.org/10.1039/C7CP07779C)
15. M. Singla, M.L. Rasmussen, H. Hashemi, H. Wu, P. Glarborg, **M. Pelucchi**, T. Faravelli, P. Marshall. “Ab Initio Calculations and Kinetic Modeling of Thermal Conversion of Methyl Chloride: Implications for Gasification of Biomass” *Physical Chemistry Chemical Physics*, 20, 10741-10752, 2018. [DOI: 10.1039/C7CP07552A](https://doi.org/10.1039/C7CP07552A)
16. G. Scalia, **M. Pelucchi**, A. Stagni, T. Faravelli, B. Pernici. “Storing Combustion Data Experiments: New Requirements Emerging from a First Prototype: Position Paper”. *Lecture Notes in Computer Science*, 2018, Springer. [DOI: 10.1007/978-3-030-01379-0_10](https://doi.org/10.1007/978-3-030-01379-0_10).

2017

17. A. Carrera, **M. Pelucchi**, A. Stagni, A. Beretta, G. Groppi. “Catalytic partial oxidation of n-octane and iso-octane: Experimental and modeling results” *International Journal of Hydrogen Energy* 42 (39), 24675-24688, 2017. [DOI: 10.1016/j.ijhydene.2017.08.020](https://doi.org/10.1016/j.ijhydene.2017.08.020)
18. **M. Pelucchi**, M. Bissoli, C. Rizzo, Y. Zhang, K. Somers, A. Frassoldati, H.J. Curran, T. Faravelli, “A Kinetic Modelling Study of Alcohols Operating Regimes in a HCCI Engine” *SAE International Journal of Engines* 10, 2354-2370, 2017. [DOI: 10.4271/2017-24-0077](https://doi.org/10.4271/2017-24-0077)
19. G. Mairinger, A. Frassoldati, A. Cuoci, **M. Pelucchi**, E. Pucher, K. Seshadri. “Experimental and computational investigation of autoignition of jet fuels and surrogates in nonpremixed flows at elevated pressures” *Fall Technical Meeting of the Western States Section of the Combustion Institute*, 2017. <http://hdl.handle.net/11311/1043115>
20. **M. Pelucchi**, E. Ranzi, A. Frassoldati, T. Faravelli, “Alkyl radicals rule the low temperature oxidation of long chain aldehydes” *Proceedings of the Combustion Institute*, 36(1), 393-401, 2017. [DOI: 10.1016/j.proci.2016.05.051](https://doi.org/10.1016/j.proci.2016.05.051)

2016

21. "Detailed kinetic mechanism of gas-phase reactions of volatiles released from biomass pyrolysis"
P. E. A. Debiagi, G. Gentile, **M. Pelucchi**, A. Frassoldati, A. Cuoci, T. Faravelli, E. Ranzi.
Biomass and bioenergy, 93, 60-71, 2016.
DOI: [10.1016/j.biombioe.2016.06.015](https://doi.org/10.1016/j.biombioe.2016.06.015)
22. **M. Pelucchi**, C. Cavallotti, E. Ranzi, A. Frassoldati, T. Faravelli. "Relative Reactivity of Oxygenated Fuels: Alcohols, Aldehydes, Ketones, and Methyl Esters" *Energy & Fuels*, 30(10), 8665-8679, 2016.
DOI: [10.1021/acs.energyfuels.6b01171](https://doi.org/10.1021/acs.energyfuels.6b01171)
23. M.S. Bernardi, **M. Pelucchi**, A. Stagni, L.M. Sangalli, A. Cuoci, A. Frassoldati, P. Secchi, T. Faravelli.
Combustion and Flame 168, 186-203, 2016. "Curve matching, a generalized framework for models/experiments comparison: An application to n-heptane combustion kinetic mechanisms"
DOI: [10.1016/j.combustflame.2016.03.019](https://doi.org/10.1016/j.combustflame.2016.03.019)
24. D. Nativel, **M. Pelucchi**, A. Frassoldati, A. Comandini, A. Cuoci, E. Ranzi, N. Chaumeix, T. Faravelli.
Combustion and Flame 166, 1-18, 2016. "Laminar flame speeds of pentanol isomers: An experimental and modeling study" DOI: [10.1016/j.combustflame.2015.11.012](https://doi.org/10.1016/j.combustflame.2015.11.012)

2015

25. **M. Pelucchi**, A. Frassoldati, T. Faravelli, B. Ruscic, P. Glarborg. "High-temperature chemistry of HCl and Cl₂" *Combustion and Flame* 162 (6), 2693-2704, 2015. DOI: [10.1016/j.combustflame.2015.04.002](https://doi.org/10.1016/j.combustflame.2015.04.002)
26. E. Ranzi, C. Cavallotti, A. Cuoci, A. Frassoldati, **M. Pelucchi**, T. Faravelli. "New reaction classes in the kinetic modeling of low temperature oxidation of n-alkanes" *Combustion and Flame* 162 (5), 1679-1691, 2015. DOI: [10.1016/j.combustflame.2014.11.030](https://doi.org/10.1016/j.combustflame.2014.11.030)
27. "An experimental and kinetic modeling study of the pyrolysis and oxidation of n-C₃-C₅ aldehydes in shock tubes" **M. Pelucchi**, K.P. Somers, K. Yasunaga, U. Burke, A. Frassoldati, E. Ranzi, H.J. Curran, T. Faravelli. *Combustion and Flame* 162 (2), 265-286, 2015.
DOI: [10.1016/j.combustflame.2014.07.027](https://doi.org/10.1016/j.combustflame.2014.07.027)

2014

28. "Improved kinetic model of the low-temperature oxidation of n-heptane" **M. Pelucchi**, M. Bissoli, C. Cavallotti, A. Cuoci, T. Faravelli, A. Frassoldati, A. Stagni, E. Ranzi *Energy & Fuels* 28 (11), 7178-7193, 2014. DOI: [10.1021/ef501483f](https://doi.org/10.1021/ef501483f)
29. "Reduced kinetic schemes of complex reaction systems: fossil and biomass-derived transportation fuels" E. Ranzi, A. Frassoldati, A. Stagni, **M. Pelucchi**, A. Cuoci, T. Faravelli *International Journal of Chemical Kinetics* 46 (9), 512-542, 2014. DOI: [10.1002/kin.20867](https://doi.org/10.1002/kin.20867)

12. Contributions to conferences and symposia (*presenter)

2019

1. "Modellazione cinetica del degrado termico di materie plastiche e miscele: stato dell'arte e sviluppi volti a migliorare l'efficienza di processi di pirolisi e gassificazione." Convegno GRICU 2019 (Chemical Engineering Italian Meeting), Palermo, Italy, 2019. ***M. Pelucchi**, A. Cuoci, A. Frassoldati, M. Mehl, T. Faravelli. Oral presentation.
2. "A systematic kinetic modelling study of mono-aromatic hydrocarbons: towards the definition of reaction classes and rate rules" ***M. Pelucchi**, L. Pratali Maffei, R. Buttgen, A. Frassoldati, K.A. Heufer, T. Faravelli. 11th International Conference on Chemical Kinetics 2019, Orleans, France. Oral presentation.
3. "A Theoretical and Kinetic Analysis of Phenol Pyrolysis" L. Pratali Maffei, **M. Pelucchi**, T. Faravelli, C. Cavallotti. 11th International Conference on Chemical Kinetics 2019, Orleans, France. Oral presentation.
4. "Fast Pyrolysis Bio-Oil Combustion Characteristics and Challenges for Kinetic Modeling" A. Frassoldati, **M. Pelucchi**, A.E. Saufi, C. Cavallotti, A. Cuoci, T. Faravelli, E. Ranzi. 11th International Conference on Chemical Kinetics 2019, Orleans, France. Oral presentation.
5. ***Chair and organizer of** "High Performance Computing: Towards High Throughput Kinetics and Combustion Model Development" Mini-Symposium, Numerical Combustion Meeting, May 2019, Aachen, Germany.
6. "Predictive Automated Combustion Chemistry: A DOE-Exascale Project" S. J. Klippenstein, ..., **M. Pelucchi**. Mini-Symposium on "High Performance Computing: Towards High Throughput Kinetics and Combustion Model Development" Numerical Combustion Meeting, May 2019, Aachen, Germany.
7. "Towards an automated and generalized approach to the validation of kinetic models" A. Stagni, **M. Pelucchi**, G. Scalia, T. Faravelli, B. Pernici. 17th Numerical Combustion Meeting, 2019, Aachen, Germany. Oral presentation.
8. "From Electronic Structure to Temperature and Pressure Dependent Rate Constants: ESTokTP. A Code for Automatically Predicting the Thermal Kinetics of Reactions" C. Cavallotti, **M. Pelucchi**, Y. Georgievskii, S. J. Klippenstein. Mini-symposium on "New Techniques in Computational Kinetics", 17th Numerical Combustion Meeting, 2019, Aachen, Germany. Oral presentation.
9. "HO₂ + HO₂: High Level Theory and the Role of Singlet Channels" S. J. Klippenstein, R. Sivaramakrishnan, U. Burke, K. Somers, H. J. Curran, L. Cai, H. Pitsch, **M. Pelucchi**, T. Faravelli, P. Glarborg. 11th U. S. National Combustion Meeting, Pasadena, USA. Oral presentation.
10. "Towards a common C0-C2 mechanism: a critical evaluation of rate constants for syngas combustion kinetics" ***M. Pelucchi**, U. Burke, K. P. Somers, L. Cai, P. Glarborg, T. Turanyi, H. Pitsch, T. Faravelli, S. J. Klippenstein. 1st International Conference on Smart Energy Carriers, Università Federico II, Napoli, Italy. Oral presentation.
11. "Theoretical and kinetic modelling study of phenol and phenoxy radical decomposition to CO and C₅H₆/C₅H₅ in pyrolysis conditions" L. P. Maffei, **M. Pelucchi**, C. Cavallotti, T. Faravelli. 1st International Conference on Smart Energy Carriers, Università Federico II, Napoli, Italy. Poster presentation.
12. "Experimental and kinetic modelling study of benzaldehyde oxidation in JSR", S. Namysl, **M. Pelucchi**, A. Stagni, O. Herbinet, T. Faravelli, F. Battin-Leclers. 1st International Conference on Smart Energy Carriers, Università Federico II, Napoli, Italy. Poster presentation.

13. "Assessment of the Analogy between Gas-Phase and Gas-Solid Reactions for the Microkinetic Modeling of Reactions at the Graphene Edges" Z.-B. Ding, **M. Pelucchi**, T. Faravelli, M. Maestri. 2019 North American Catalysis Society Meeting, Chicago, IL, USA, 23rd-28th June 2019. Poster presentation.
14. "Towards a better understanding of the combustion of oxygenated aromatic hydrocarbons in rapid compression machine" R. D. Buttgen, L. Pratali Maffei, **M. Pelucchi**, T. Faravelli, A. Frassoldati, K.A. Heufer. 9th European Combustion Meeting, Lisbon, Portugal, 14th-17th April 2019. Poster presentation.
15. "Mechanism Comparison for PAH Formation in Pyrolysis and Laminar Premixed Flames" W. Pejpichestakul, R. Tripathi, **M. Pelucchi**, L. Cai, H. Pitsch, E. Ranzi, T. Faravelli. 9th European Combustion Meeting, Lisbon, Portugal, 14th-17th April 2019. Poster presentation.
16. "Evaluation of Polycyclic Aromatic Hydrocarbon Formation in Counterflow Diffusion Flames" R. Tripathi, W. Pejpichestakul, L. Cai, **M. Pelucchi**, T. Faravelli, H. Pitsch. 9th European Combustion Meeting, Lisbon, Portugal, 14th-17th April 2019. Poster presentation.
17. "Experimental and modelling study of the oxidation of methane doped with ammonia" Y. Song, O. Herbinet, **M. Pelucchi**, A. Stagni, T. Faravelli, F. Battin-Leclerc. 9th European Combustion Meeting, Lisbon, Portugal, 14th-17th April 2019. Poster presentation.

2018

18. "An experimental and kinetic modelling study of c4-c5 carboxylic acids pyrolysis and oxidation in a jet stirred reactor" ***M. Pelucchi**, S. Namysl, O. Herbinet, T. Faravelli, F. Battin-Leclerc. ChemReactor-23, Ghent, Belgium. Oral presentation.
19. "Automated computational thermochemistry for butane oxidation: A prelude to predictive automated combustion kinetics" M. Keçeli, S. Elliott, Y-P Li, M. Johnson, C. Cavallotti, Y. Georgievskii, W.H. Green, **M. Pelucchi**, J.M. Wozniak, A.W. Jasper, S.J. Klippenstein. 37th International Symposium on Combustion, Dublin, Ireland. Oral presentation.
20. "Examination of a soot model in premixed laminar flames at fuel-rich conditions" W. Pejpichestakul, E. Ranzi, **M. Pelucchi**, A. Frassoldati, A. Cuoci, A. Parente, T. Faravelli. 37th International Symposium on Combustion, Dublin, Ireland. Oral presentation.
21. "Analysis of acetic acid gas phase reactivity: Rate constant estimation and kinetic simulations" C. Cavallotti, **M. Pelucchi**, A. Frassoldati. 37th International Symposium on Combustion, Dublin, Ireland. Oral presentation
22. "An experimental and kinetic modelling study of n-C4C6 aldehydes oxidation in a jet-stirred reactor" ***M. Pelucchi**, S. Namysl, E. Ranzi, A. Frassoldati, O. Herbinet, F. Battin-Leclerc, T. Faravelli. 37th International Symposium on Combustion, Dublin, Ireland. Oral presentation.
23. "A critical evaluation of rate constants for syngas combustion kinetics" U. Burke, ***M. Pelucchi**, L. Cai, P. Glarborg, T. Turanyi, H. Pitsch, T. Faravelli, S. J. Klippenstein. International Flame Chemistry Workshop, Trinity College, Dublin, Ireland. Oral presentation.
24. "Best Practices – Measurements, Repositories, Standards for Rapid Compression Machines" ***M. Pelucchi**, S. Dooley, S. Goldsborough. 4th International RCM Workshop, Trinity College, Dublin, Ireland. Oral presentation.
25. "From electronic structure calculations to temperature and pressure dependent rate constants: a new computational environment" C. Cavallotti, **M. Pelucchi**, Y. Georgievskii, S. J. Klippenstein. Oral presentation. International Symposium on Chemical Reaction Engineering (ISCRE18), Firenze, Italy.
26. "H-Abstraction reactions by OH, HO₂, O, O₂ and benzyl radical addition to O₂ and their implications for kinetic modelling of toluene oxidation" ***M. Pelucchi**, C. Cavallotti, T. Faravelli, S.J. Klippenstein. BUNSENTAGUNG 2018 - KINETICS IN THE REAL WORLD, Leibniz University, Hannover.

2017

27. "Ab Initio and Kinetic Modelling Study of Toluene Oxidation" ***M. Pelucchi**, C. Cavallotti, T. Faravelli, S.J. Klippenstein. 10th International Conference on Chemical Kinetics, University of Illinois, Chicago, USA. Oral presentation. Oral presentation.
28. "A kinetic modelling study of alcohols operating regimes in a HCCI engine" ***M. Pelucchi**, M. Bissoli, C. Rizzo, A. Frassoldati, T. Faravelli, K.P. Somers, Y. Zhang, H.J. Curran. International Conference on Internal Combustion Engines-SAE Napoli, Capri, Italy. Oral presentation.
29. "Experimental and computational investigation of autoignition of jet fuels and surrogates in nonpremixed flows at elevated pressures". G. Mairinger, A. Frassoldati, A. Cuoci, **M. Pelucchi**, E. Pucher, K. Seshadri. 2017 Fall Technical Meeting of the Western States Section of the Combustion Institute. Wyoming, USA. Oral presentation.
30. "Exploring the reactivity of C4-C6 linear alcohols: from jet stirred reactor and rapid compression machine experiments to operating regimes in a hcci engine" ***M. Pelucchi**, M. Bissoli, C. Rizzo, A. Frassoldati, T. Faravelli, K.P. Somers, Y. Zhang, H.J. Curran, F. Battin-Leclerc, S. Namysl, O. Herbinet. Third Annual Meeting of the SMARTCATs COST Action, J. Heyrovský Institute of Physical Chemistry, Czech Academy of Science, Prague, Czech Republic. Oral presentation.
31. "Towards a community standard data exchange: an application to RCM measurements and simulations" ***M. Pelucchi**, A. Matrisciano, S. Dooley. Third Annual Meeting of the SMARTCATs COST Action, J. Heyrovský Institute of Physical Chemistry, Czech Academy of Science, Prague, Czech Republic. Oral presentation.

2016

32. "Towards a fully automated system to develop, validate and evaluate combustion kinetic mechanisms poster: extension of respecth database for application in fully automated system for the development and validation of kinetic mechanisms" ***M. Pelucchi**, A. Rigamonti, A. Frassoldati, B. Pernici, T. Faravelli. Second Annual Meeting of the SMARTCATs COST Action, Instituto Tecnico Superior, Lisbon, Portugal. Oral presentation.
33. "Data exchange: towards a community standard" ***M. Pelucchi**, A. Stagni, A. Frassoldati, A. Cuoci, E. Ranzi, T. Faravelli. Second Annual Meeting of the SMARTCATs COST Action, Instituto Tecnico Superior, Lisbon, Portugal. Workshop on data exchange. Oral presentation.
34. "Alkyl radicals rule the low temperature oxidation of aldehydes" ***M. Pelucchi**, E. Ranzi, A. Frassoldati T. Faravelli. 36th International Symposium on Combustion, Seoul, South Korea. Oral presentation.

2015

35. "Curve Matching, a generalized framework for combustion models validation" ***M. Pelucchi**, M. Bernardi, A. Stagni, L. M. Sangalli, P. Secchi, T. Faravelli. European Combustion Meeting 2015, Budapest, Hungary. Workshop "Taming uncertainty in combustion chemistry: experiments and models". Oral presentation.
36. "Detailed kinetic mechanisms for practical applications: new reaction classes and model reduction" ***M. Pelucchi**, A. Stagni, A. Frassoldati, A. Cuoci, M. Bissoli, E. Ranzi, T. Faravelli. **Invited talk** at Young Researchers Colloquium, Clean Air Conference 2015, Lisbon, Portugal. Oral Presentation.
37. "Kinetic modeling of the low temperature cool flames of acetaldehyde in a well stirred reactor" ***M. Pelucchi**, A. El Ziani, M. Mensi, E. Ranzi, A. Frassoldati T. Faravelli. 28th Italian Combustion Meeting, Università di Lecce, Italy. Oral and poster presentation.
38. "Oxidation of C3 and n-C4 aldehydes at low temperatures" ***M. Pelucchi**, E. Ranzi, A. Frassoldati T. Faravelli. 28th Italian Combustion Meeting, Università di Lecce, Italy. Oral and poster presentation.

2014

39. "Kinetic modeling of biofuels: aldehydes oxidation" ***M. Pelucchi**, A. Frassoldati, E. Ranzi, T. Faravelli. 1st International conference on Biomass. Firenze, Italy. Oral presentation.

2013

40. "Experimental and kinetic modeling study of C3-C5 n-aldehydes auto-ignition and pyrolysis in shock tubes" ***M. Pelucchi**, K. P. Somers, U. Burke, C. Saggese, K. Yasunaga, A. Frassoldati, E. Ranzi, H. J. Curran, T. Faravelli. 4th Annual meeting of COST Action CM0901, Università di Perugia, Perugia, Italy. Oral Presentation.