

Decreto Rettore Università di Roma “La Sapienza” n 123/2020 del 14/01/2020

**ALESSANDRO LATINI**  
**Curriculum Vitae ai fini della pubblicazione**

Place Roma

Date 23/01/2020

**Part I – General Information**

Full Name	Alessandro Latini
Spoken Languages	Italian, English

**Part II – Education**

Type	Year	Institution	Notes (Degree, Experience,...)
University graduation	2001	Università degli Studi di Roma La Sapienza	Chemistry, 110/110 e lode
PhD	2006	Università degli Studi di Roma La Sapienza	Chemical Sciences; Visiting Student at the National Institute for Material Science, Tsukuba, Japan with a JISTEC REES Program Fellowship (July-August 2005)

**Part III – Appointments**

IIIA – Academic Appointments

Start	End	Institution	Position
2007	Current	Department of Chemistry, Università degli Studi di Roma La Sapienza	Permanent Researcher

IIIB – Other Appointments

Start	End	Institution	Position
2019	Current	Dipartimento di Chimica Università degli Studi di Roma La Sapienza	Member of the PhD board in Chemical Sciences
2016	2019	Facoltà di Scienze Matematiche, Fisiche e Naturali Università degli Studi di Roma La Sapienza	Member of the Faculty board
2016	2019	Dipartimento di Chimica Università degli Studi di Roma La Sapienza	Member of the Department board
2010	2013	Dipartimento di Chimica Università degli Studi di Roma La Sapienza	Member of the Department board
2016	2016	Chemistry School, University of Costa Rica	Invited Scientist
2019	2019	Università degli Studi della Basilicata	Member of the selection board for a A-type fixed-term researcher position

2011	2018	The Executive Unit for Financing Higher Education, Research, Development and Innovation (UEFISCDI) of the Romanian Ministry of National Education.	(RTD-A), SSD CHIM/02 Evaluator of research projects
2016	current	Ministero dell'Istruzione dell'Università e della Ricerca	Registered in the REPRIZE register of Scientific Experts

#### Part IV – Teaching experience

Year	Institution	Lecture/Course
2008/2009	Università degli Studi di Roma La Sapienza	Teacher of the thermodynamics module of the “Laboratorio di Chimica Fisica” (3 CFU) course for the Degree in Chemistry
2008/2009	Università degli Studi di Roma La Sapienza	Teacher of the course “Materiali Funzionali e Strutturali” (5 CFU) for the Degree in Chemistry
2009/2010	Università degli Studi di Roma La Sapienza	Teacher of the course “Materiali Funzionali e Strutturali” (5 CFU) for the Degree in Chemistry
2010/2011	Università degli Studi di Roma La Sapienza	Teacher of the course “Chimica Fisica dello Stato Solido e Materiali Nanostrutturati” (6 CFU) for the Master Degree in Industrial Chemistry
2011/2012	Università degli Studi di Roma La Sapienza	Teacher of the course “Chimica Fisica dello Stato Solido e Materiali Nanostrutturati” (6 CFU) for the Master Degree in Industrial Chemistry
2012/2013	Università degli Studi di Roma La Sapienza	Teacher of the course “Chimica Fisica dello Stato Solido e Materiali Nanostrutturati” (6 CFU) for the Master Degree in Industrial Chemistry
2017/2018	Università degli Studi di Roma La Sapienza	Teacher of the course “Chimica Generale e Inorganica” (9 CFU) for the Degree in Agro-Industrial Biotechnology
2018/2019	Università degli Studi di Roma La Sapienza	Teacher of the course “Chimica Generale e Inorganica” (9 CFU) for the Degree in Agro-Industrial Biotechnology
2019/2020	Università degli Studi di Roma La Sapienza	Teacher of the course “Chimica Generale e Inorganica” (6 CFU) for the Degree in Natural Sciences
2007-current	Università degli Studi di Roma La Sapienza	Supervisor of 5 Master degree theses in Chemistry, 2 PhD theses in Chemical Sciences and 1 PhD thesis in mathematical models for engineering, electromagnetics and nanosciences - Curriculum in materials science.

## Part V - Society memberships, Awards and Honors

Year	Title
2017-current	Member of the Italian Society of Chemistry (SCI)-Physical Chemistry Division

## Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2009	Dai minerali ai materiali: relazioni fra struttura, proprietà fisiche e applicazioni in ossidi multipli naturali e di sintesi	Progetti di Ricerca Universitari - I	€ 22000
2009	Nanostrutture di carbonio funzionalizzate con sistemi metallici	Ricerche di Ateneo Federato - I	€ 5180
2009	Sintesi, caratterizzazione e funzionalizzazione di nanotubi di carbonio per applicazioni fotovoltaiche	PRIN 2009 - I	€ 218198
2010	Sintesi e caratterizzazione di ossidi semiconduttori nanostrutturati per celle fotovoltaiche DSSC (Dye Sensitized Solar Cells)	Progetti di Ricerca Universitari - I	€ 35000
2011	Sintesi e caratterizzazione di nanocompositi nanotubo di carbonio/semiconduttore per Dye Sensitized Solar Cells (DSSC)	Progetti di Ricerca Universitari - I	€ 4000
2012	Sintesi, caratterizzazione di soluzioni solide di ossidi metallici per celle fotovoltaiche a coloranti e loro test in dispositivi reali	Progetti di Ricerca Universitari - PI	€ 2000
2013	Sistemi mesoporosi costituiti da soluzioni solide di ossidi metallici per celle fotovoltaiche a colorante	Progetti di Ricerca Universitari - PI	€ 7200
2014	Studio di Materiali Polimerici Basati su Interazioni Covalenti e Supramolecolari tra Strutture Molecolari Cicliche Interbloccate (Catenani e Rotassani) e non	Progetti di Ricerca Universitari - I	€ 5000
2015	Development and characterization of reactive materials for groundwater remediation	Progetti di Ricerca Universitari - I	€ 25000
2015	Multifunctional nanotools for advanced cancer diagnostics	PRIN 2015 - I	€ 276000
2016	Niobium pentoxide as photoanode material for dye-sensitized solar cells	Progetti di Ricerca Universitari - PI	€ 4000
2017	Macro cicli porfirazinic e loro	Progetti di Ricerca	€ 12000

	applicazioni in campo biomedico nel campo della terapia anticancro bi/multimodale, nel trattamento di biofilm batterici, nel campo dei sensori chimici	Universitari - I	
2017	Novel Multilayered and Micro-Machined Electrode Nano-Architectures for Electrocatalytic Applications (Fuel Cells and Electrolyzers)	PRIN 2017 - I	€ 692840
2018	Sintesi, caratterizzazione e studio della stabilità termodinamica di nuovi sistemi perovskitici ibridi piombo alogenuro	Progetti di Ricerca Universitari - PI	€ 14000
2019	Confined nanometals: structure and properties of alkali metals in mesopores (CUTE)	Progetti di Ricerca Universitari - PI	€ 14000

## Part VII – Research Activities

### Keywords

Thin films
Thermodynamics
Nanomaterials
Dye-sensitized solar cells
Hybrid lead halide perovskites

### Brief Description

Investigation of the kinetics of carbon nanotubes (CNT) growth and simultaneous production of CO<sub>x</sub>-free hydrogen from thermal catalysed decomposition of light hydrocarbons on intermetallic catalysts and on metal nanostructures by means of mass spectrometric real-time analysis and thermogravimetry. Characterization of the CNTs by electron microscopy techniques (SEM-EDS, TEM, HRTEM), electron, and X-ray diffraction. High temperature CNTs reactivity towards oxidizing species at low fugacity. Chemical functionalization of CNTs and realization of CNT-based nanocomposites. Physical modelling of the nucleation and growth mechanism of CNTs from the experimental data. Growth of luminescent ceramic thin films vapour-phase doped with rare earth trivalent ions (Eu<sup>3+</sup>, Tb<sup>3+</sup> and Tm<sup>3+</sup>) by electron beam physical vapor deposition. Evaluation of the most suitable host oxides from their thermodynamic, physical, structural and spectroscopic properties. Characterization of the above films by means of chemical (EDS) morphological (SEM) and structural (HRTEM, thin film XRD, EXAFS, XANES) analysis. Characterization of the films' emission properties by chromaticity, cathodo- and photoluminescence measurements. Growth and structural (XRD), morphological (SEM), chemical (EDS) characterization of ceramic for biomedical and mechanical applications. Study of thermodynamic properties of intermetallics, alloys, inorganic compounds and nanomaterials by means of differential scanning calorimetry and solid state-high temperature galvanic cells (CaF<sub>2</sub> solid electrolyte). Dye-sensitized solar cells, with particular emphasis on the improvement of their performances by chemical and/or structural modification of the photoanodic materials. Synthesis and characterization of new materials for energy conversion applications (wide gap oxide semiconductors, hybrid lead halide perovskites), with special emphasis on the thermal and thermodynamic stability determination of hybrid lead halide perovskites by experimental techniques.

## Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	70	Scopus	2002	2020
Books [teaching]	1	ISBN 9788808920539	2020	current

Total Impact factor	219.91
Total Citations	1149
Average Citations per Product	16.41
Hirsch (H) index	21
Hirsch (H) index last 15 years	19
Normalized H index*	1.17
Papers published in the last 10 years	41

\*H index divided by the academic seniority.

## Part IX– Selected Publications

List of the publications selected for the evaluation. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

1. Andrea Ciccio, Riccardo Panetta, Alessio Luongo, Bruno Brunetti, Stefano Vecchio Cipriotti, Maria Luisa Mele, Alessandro Latini. **Stabilizing lead halide perovskites with quaternary ammonium cations: The case of tetramethylammonium lead iodide.** *Phys. Chem. Chem. Phys.*, 2019, 21, 24768-24777. IF=3.567 Citations=0
2. Andrea D'Annibale, Riccardo Panetta, Ombretta Tarquini, Marcello Colapietro, Simone Quaranta, Alberto Cassetta, Luisa Barba, Giuseppe Chita and Alessandro Latini. **Synthesis, physico-chemical characterization and structure of the elusive hydroxylammonium lead iodide perovskite NH<sub>3</sub>OHPbI<sub>3</sub>.** *Dalton Trans.*, 2019, 48, 5397-5407. IF=4.052 Citations=0
3. Andrea Ciccio, Alessandro Latini. **Thermodynamics and the Intrinsic Stability of Lead Halide Perovskites CH<sub>3</sub>NH<sub>3</sub>PbX<sub>3</sub>.** *J. Phys Chem. Letters*, 2018, 9, 3756-3765. IF=7.329 Citations=26
4. Riccardo Panetta, Guido Righini, Marcello Colapietro, Luisa Barba, Davide Tedeschi, Antonio Polimeni, Andrea Ciccio, Alessandro Latini. **Azetidinium Lead Iodide: Synthesis, Structural and Physico-Chemical Characterization.** *J. Mater. Chem. A*, 2018, 6, 10135-10148. IF=10.733 Citations=2
5. Alessandro Latini, Guido Gigli, Andrea Ciccio. **A study on the nature of the thermal decomposition of methylammonium lead iodide perovskite, CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub>: an attempt to rationalise contradictory experimental results.** *Sustain. Energy Fuels*, 2017, 1, 1351-1357. IF=0 Citations=42
6. Carmen Cavallo, Francesco Di Pascasio, Alessandro Latini, Matteo Bonomo, Danilo Dini. **Nanostructured Semiconductor Materials for Dye-Sensitized Solar Cells.** *J. Nanomater.*, Volume 2017, Article ID 5323164, 31 pages. IF=2.207 Citations=38

7. Bruno Brunetti, Carmen Cavallo, Andrea Ciccioi, Guido Gigli, Alessandro Latini. **On the Thermal and Thermodynamic (In)Stability of Methylammonium Lead Halide Perovskites.** *Sci. Rep.*, 2016, 6, 31896. IF=4.259 Citations=79
8. Alessandro Latini, Carmen Cavallo, Fadi Kamal Aldibaja, Daniele Gozzi, Daniela Carta, Anna Corrias, Laura Lazzarini, Giancarlo Salviati. **Efficiency Improvement of DSSC Photoanode by Scandium Doping of Mesoporous Titania Beads.** *J. Phys. Chem. C*, 2013, 117, 25276-25289. IF=4.835 Citations=41
9. Alessandro Latini, Fadi Kamal Aldibaja, Carmen Cavallo, Daniele Gozzi. **Benzonitrile based electrolytes for best operation of dye sensitized solar cells.** *J. Power Sources*, 2014 269, 308-316. IF=6.217 Citations=12
10. Julietta V. Rau, Alessandro Latini. **New hard and superhard materials: RhB<sub>1.1</sub> and IrB<sub>1.35</sub>** *Chem. Mater.*, 2009, 21, 1407-1409. IF=5.368 Citations=49
11. Alessandro Latini, Julietta V. Rau, Daniela Ferro, Roberto Teghil, Valerio Rossi Albertini, Sergey M. Barinov. **Superhard Rhenium Diboride Films: Preparation and Characterization.** *Chem. Mater.*, 2008, 20, 4507-4511. IF=5.046 Citations=62
12. Daniele Gozzi, Massimiliano Iervolino, Alessandro Latini. **The Thermodynamics of the Transformation of Graphite to Multiwalled Carbon Nanotubes.** *J. Am. Chem. Soc.*, 2007, 129, 10269-10275. IF=7.885 Citations=22

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