

# CURRICULUM VITAE

FORMATO EUROPEO/EUROPEAN FORMAT



## PERSONAL INFORMATION

Name, Surname Matteo Passoni  
Address 10, Via G. Motta, 20044, Bernareggio, Italy  
Telephone +390223993267  
Fax +390223996309  
E-mail matteo.passoni@polimi.it  
Website <http://www.nanolab.polimi.it/>  
Nationality Italian  
Place and Date of birth Lodi, 18-07-1975

## WORK EXPERIENCE

Dates (from – to) November 2018 - present  
Name and address of employer Politecnico di Milano (POLIMI), piazza Leonardo da Vinci 32, 20133, Milano, Italy  
Type of business or sector University, Department of Energy  
Occupation or position held Full Professor in physics of matter (SSD FIS/03, SC 02/B2)  
Main activities and responsibilities

- Principal Investigator of an ERC Consolidator Grant (ENSURE project) and an ERC Proof Of Concept Grant (INTER project)
- Experimental and theoretical research activities (deposition and characterization of nanostructured coatings and films) in the field of nuclear fusion and laser-plasma interaction/particle acceleration at the Micro and Nano Structured Materials Lab
- Theoretical research activities at the Micro and Nano Structured Materials Lab in the field of Scanning Tunneling Microscopy/Spectroscopy
- Lecturer of the master courses “Plasma physics I+II” and “Physics of the nucleus”
- Vice-Dean of the Industrial and Information Engineering School at POLIMI
- Head of the Faculty Committee of the MSc program in Nuclear Engineering at POLIMI
- Vice-Head (Vice Coordinatore) of the PhD Program in Energy and Nuclear Science and Technology at POLIMI; Member of the Faculty Committee of various Degree Programs at POLIMI;

## EDUCATION AND TRAINING

Dates (from – to) 2001 - 2004  
Name and type of organisation providing education and training Politecnico di Milano, p.zza Leonardo da Vinci 32, 20133, Milano, Italy  
Principal subjects occupational skills covered Science and Technology of Radiations, Plasma Physics, Nuclear Science, Material Science  
Title of qualification awarded Doctoral Degree in “Radiation Science and Technology” (Ph.D.)  
Level in National classification Cum laude  
Dates (from – to) 1995 - 2000  
Name and type of organisation providing education and training Politecnico di Milano, p.zza Leonardo da Vinci 32, 20133, Milano, Italy  
Principal subjects occupational skills Nuclear Engineering, Physics of Matter, Material Science  
Title of qualification awarded Master Degree in Nuclear Engineering  
Level in National Classification 100/100 cum laude

## RESEARCH ACTIVITIES

### Research sectors

- Laser-Plasma interaction and Laser-Plasma based particle acceleration
- Plasma Physics
- Material Science and Nanotechnology
- Materials for Energy
- Materials for Nuclear Fusion (W and W alloys, Rh, C, B)
- Deposition of nanostructured coatings, PVD, Pulsed Laser Deposition
- Surface Science
- Structural and Morphological characterization of materials (STM, SEM, Raman XRD, AFM).

### Recent Scientific Activities.

- **2015-present** Principal Investigator of the ERC Consolidator Grant ENSURE (Exploring the new science and engineering unveiled by ultraintense ultrashort radiation interaction with matter), devoted to laser-driven ion acceleration and its applications in materials and nuclear sciences.
- **May 2017-October 2018** Principal Investigator of an ERC PoC Grant (INTER project)
- **2014 - present** Scientific responsible for the POLIMI research within the European "Eurofusion" Program, for the development of magnetic nuclear fusion, within H2020. Project in collaboration with ENEA and ISTP-CNR, Milano
- **2019** Organizer of the "4th Targetry for High Repetition Rate Laser-Driven Sources Workshop" (TARG4: Milano, 9-12 June 2019) and of the EPS DPP satellite workshop on High-Field Laser-Plasma Interaction (HFLPI: Milano, 13 July 2019)
- **2017** Co-Director of the Course "Atoms and Plasmas in Superintense Laser Fields", International School on Quantum Electronics (Erice, 7-17 July 2017).
- **2015** Co-Director of the Course "Atoms and Plasmas in Superintense Laser Fields", International School on Quantum Electronics (Erice, 12-22 July 2015).
- **2014-2015** Co-Principal Investigator of the Italian-Korean bilateral project "Advanced materials and design of targets for laser-driven ion acceleration and high field plasmonics", approved by CNR and NRF (Korea)
- **2011 – 2014** Principal investigator of a FIRB08 "futuro in ricerca" project; project name: SULDIS. Production of nanostructured targets to be used in laser matter interaction experiments for the production of accelerated ions.
- **2010 – 2013** Participation to the EFDA (European Fusion Development Agreement) WORKPROGRAMMES 2011-2013 in the framework of ITER Physics Support Projects in collaboration with IFP-CNR. Production of nanostructured metallic coatings for tritium retention studies.
- **2012** PI of the LaseLab EUROPE (FP7) project (proposal SLIC001689) "Laser driven ion acceleration with multi-layered targets", involving experimental campaigns at CEA Saclay, France.
- **2011** Collaboration to the DANTE Project (Diagnostica Avanzata di Neutroni e Tecnologia per l'ESS/AB) in collaboration with Istituto di Fisica del Plasma di Milano (IFP-CNR). Production of boron coatings to be used as active materials in neutron detectors
- **2009 – 2011** Participation to the "2° ACCORDO DI PROGRAMMA CNR – MSE Linea progettuale D1" in collaboration with Istituto per l'Energetica e le Interfasi (IENI). Development of W-Ta alloys as coatings for harsh environments.
- **2010** Co-Director of the International Conference "Superstrong Fields in Plasmas" (Varenna, 3-9 Oct. 2010).
- **2009-2010** Participant at CARIPLO project "IMaging MAGnetic Interfaces and NAnostructures (Immagina)"

1. A. Maffini, A. Pazzaglia, D. Dellasega, V. Russo, M. Passoni, *Physical Review Materials* **3**, 08340 (2019)
2. A. Pazzaglia, A. Maffini, D. Dellasega, A. Lamperti, M. Passoni, *Materials Characterization* **153**, 92-102 (2019)
3. M. Passoni, L. Fedeli, F. Mirani, *Scientific Reports* **9**, 9202 (2019)
4. E. Besozzi, D. Dellasega, V. Russo, C. Conti, M. Passoni, M.G. Beghi, *Materials and Design* **165**, 107565 (2019)
5. F. Tumino, C.S. Casari, M. Passoni, V. Russo, A. Li Bassi, *Nanoscale Advances* **1**, 643-655 (2019)
6. D. Dellasega, M. Bollani, L. Anzi, A. Pezzoli, D. Chrastina, A. Gulinatti, G. Irde, R. Sordan, M. Passoni, S.M. Pietralunga, *Thin Solid Films* **666**, 121-129 (2018)
7. R. Mateus, D. Dellasega, M. Passoni, Z. Siketic, I.B. Radovic, A. Hakola, E. Alves, *Surface & Coatings Technology* **355**, 215-221 (2018)
8. O.V. Ogorodnikova, C. Ruset, D. Dellasega, A. Pezzoli, M. Passoni, K. Sugiyama, Yu Gasparyan, V. Efimov, *Journal of Nuclear Materials* **507**, 226-240 (2018)
9. L. Fedeli, A. Formenti, L. Cialfi, A. Pazzaglia, M. Passoni, *Scientific reports* **8**, 3834 (2018)
10. E Besozzi, A Maffini, D Dellasega, V Russo, A Facibeni, A Pazzaglia, MG Beghi, M Passoni *Nuclear Fusion* **58** 036019 (2018)
11. E. Besozzi, D. Dellasega, A. Pezzoli, A. Mantegazza, M. Passoni, M.G. Beghi *Materials and Design* **137**, 192-203 (2018)
12. L. Fedeli, A. Formenti, L. Cialfi, A. Sgattoni, G. Cantono, M. Passoni, *Plasma Physics and Controlled Fusion* **60**, 014013 (2018)
13. D. Dellasega, V. Russo, A. Pezzoli, C. Conti, N. Lecis, E. Besozzi, M.G. Beghi, C.E. Bottani, M. Passoni *Materials and Design* **134**, 35-43 (2017)
14. F. Inzoli, D. Dellasega, V. Russo, F. Ghezzi, M. Passoni *Diamond and Related Materials* **80**, 69-75 (2017)
15. S. Brezinsek, et al. *Nuclear Fusion* **57**, 116041 (2017)
16. L. Fedeli, A. Formenti, C.E. Bottani, M. Passoni, *European Physical Journal D* **71**, 202 (2017)
17. R. Yivlialin, G. Bussetti, L. Brambilla, C. Castiglioni, M. Tommasini, L. Duò, M. Passoni, M. Ghidelli, C.S. Casari, A. Li Bassi, *Journal of Physical Chemistry C* **121**, 14246-14253 (2017)
18. F. Inzoli, D. Dellasega, V. Russo, R. Caniello, C. Conti, F. Ghezzi, M. Passoni *Diamond and Related Materials* **74**, 212-221 (2017)
19. A. Maffini, L. Moser, L. Marot, R. Steiner, D. Dellasega, A. Uccello, E. Meyer, M. Passoni, *Nuclear Fusion* **57**, 046014 (2017)
20. I. Prencipe, et al *High Power Laser Science and Engineering* **5**, e17 (2017)
21. F. Tumino, C.S. Casari, M. Passoni, C.E. Bottani, A. Li Bassi *Nanotechnology* **27**, 475703 (2016)
22. L. Cialfi, L. Fedeli, M. Passoni *Physical Review E* **94**, 053201 (2016)
23. E. Besozzi, D. Dellasega, A. Pezzoli, C. Conti, M. Passoni, M.G. Beghi *Materials and Design* **106**, 14-21 (2016)
24. A. Maffini, A. Uccello, D. Dellasega, M. Passoni *Nuclear Fusion* **56**, 086008 (2016)
25. M. Passoni, A. Sgattoni, I. Prencipe, L. Fedeli, D. Dellasega, L. Cialfi, I.W. Choi, I.J. Kim, K.A. Janulewicz, H.W. Lee, J.H. Sung, S.K. Lee, C.H. Nam *Physical Review Accelerators and Beams* **19**, 061301 (2016)
26. G. Bussetti, R. Yivlialin, D. Alliata, A. Li Bassi, C. Castiglioni, M. Tommasini, C.S. Casari, M. Passoni, P. Biagioni, F. Ciccacci, L. Duò *Journal of Physical Chemistry C* **120**, 6088-6093 (2016)

27. L. Fedeli, A. Sgattoni, G. Cantono, D. Garzella, F. Réau, I. Prencipe, M. Passoni, M. Raynaud, M. Květoň, J. Proška, A. Macchi, T. Ceccotti *Physical Review Letters* **116**, 015001 (2016)
28. I. Prencipe, A. Sgattoni, D. Dellasega, L. Fedeli, L. Cialfi, I.W. Choi, I.J. Kim, K.A. Janulewicz, K.F. Kakolee, H.W. Lee, J.H. Sung, S.K. Lee, C.H. Nam, M. Passoni *Plasma Physics and Controlled Fusion* **58**, 034019 (2016)
29. F. Tumino, P. Carrozzo, L. Mascaretti, C.S. Casari, M. Passoni, S. Tosoni, C.E. Bottani, A. Li Bassi *2D Materials* **2**, 045011 (2015)
30. E. Vassallo, R. Caniello, G. Angella, D. Dellasega, G. Granucci, V. Mellerà, D. Minelli, M. Pedroni, D. Ricci, V. Rigato, M. Passoni, *Journal of Nuclear Materials* **466**, 621-626 (2015)
31. D. Dellasega, S.M. Pietralunga, A. Pezzoli, V. Russo, L. Nasi, C. Conti, M.J. Vahid, A. Tagliaferri, M. Passoni, *Nanotechnology* **26**, 365601 (2015)
32. L. Laguardia, R. Caniello, A. Cremona, D. Dellasega, F. Dell'Era, F. Ghezzi, G. Gittini, G. Granucci, V. Mellerà, D. Minelli, F. Pallotta, M. Passoni, D. Ricci, E. Vassallo, *Journal of Nuclear Materials* **463**, 680-683 (2015)
33. A. Maffini, A. Uccello, D. Dellasega, V. Russo, S. Perissinotto, M. Passoni, *Journal of Nuclear Materials* **463**, 944-947 (2015)
34. A. Pezzoli, D. Dellasega, V. Russo, A. Gallo, P.A. Zeijlmans Van Emmichoven, M. Passoni, *Journal of Nuclear Materials* **463**, 1041-1044 (2015)
35. M.H.J. 'T Hoen, D. Dellasega, A. Pezzoli, M. Passoni, A.W. Kleyn, P.A. Zeijlmans Van Emmichoven, *Journal of Nuclear Materials* **463**, 989-992 (2015)
36. I. Prencipe, D. Dellasega, A. Zani, D. Rizzo, M. Passoni, *Science and Technology of Advanced Materials* **16**, 025007 (2015)
37. P. Carrozzo, F. Tumino, A. Facibeni, M. Passoni, C.S. Casari, A. Li Bassi, *Review of Scientific Instruments* **86**, 016112 (2015)
38. F. Ghezzi, G. Cacciamani, R. Caniello, D.C. Toncu, F. Causa, D. Dellasega, V. Russo, M. Passoni, *Journal of Physical Chemistry* **118**, 24714-24722 (2014)
39. E. Vassallo, R. Caniello, M. Canetti, D. Dellasega, M. Passoni, *Thin Solid Films* **558**, 189-193 (2014)
40. M. Passoni, A. Zani, A. Sgattoni, D. Dellasega, A. Macchi, I. Prencipe, V. Floquet, P. Martin, T.V. Liseykina, T. Ceccotti, *Plasma Physics and Controlled Fusion* **56**, 045001 (2014)
41. A. Uccello, B. Eren, L. Marot, D. Dellasega, A. Maffini, R. Steiner, D. Mathys, E. Meyer, M. Passoni, *Journal of Nuclear Materials* **446**, 106-112 (2014)
42. P. Carrozzo, F. Tumino, M. Passoni, C.E. Bottani, C.S. Casari, A. Li Bassi, *Surface Science* **619**, 77-82 (2014)
43. E. Vassallo, R. Caniello, S. Deambrosis, D. Dellasega, F. Ghezzi, L. Laguardia, E. Miorin, M. Passoni, *Journal of Fusion Energy* **32**, 642-646 (2013)
44. T. Ceccotti et al, *Physical Review Letters* **111**, 185001 (2013)
45. A. Macchi, M. Borghesi, M. Passoni, *Reviews of Modern Physics* **85**, 751-793 (2013)
46. M. Passoni, C. Perego, A. Sgattoni, D. Batani, *Physics of Plasmas* **20**, 060701 (2013)
47. F. Donati, G. Fratesi, L. Ning, A. Brambilla, M.I. Trioni, A. Li Bassi, C.S. Casari, M. Passoni, *Physical Review B* **87**, 235431 (2013)
48. A. Uccello, A. Maffini, D. Dellasega, M. Passoni, *Fusion Engineering and Desing*, **88**, 1347-1351 (2013)
49. A. Uccello, D. Dellasega, S. Perissinotto, N. Lecis, M. Passoni, *Journal of Nuclear Materials* **432**, 261-265 (2013)
50. A. Macchi, A. Sgattoni, S. Sinigardi, M. Borghesi, M. Passoni, *Plasma Physics and Controlled Fusion*, **55**, 124020 (2013)
51. E. Vassallo, R. Caniello, A. Cremona, G. Croci, D. Dellasega, G. Gorini, G. Grosso, E.

- Miorin, M. Passoni, M. Tardocchi, *Surface and Coatings Technology* **214**, 59–62 (2013)
52. A. Zani, D. Dellasega, V. Russo, M. Passoni, *Carbon* **56**, 358–365 (2013)
  53. D. Dellasega, G. Merlo, C. Conti, C. E. Bottani, M. Passoni, *Journal of Applied Physics* **112**, 084328 (2012).
  54. V. Nemanič, B. Zajec, D. Dellasega, M. Passoni, *Journal of Nuclear Materials* **429**, 92–98 (2012).
  55. M. Passoni, V. Russo, D. Dellasega, F. Causa, F. Ghezzi, D. Wolverson, C.E. Bottani *Journal of Raman Spectroscopy* **43**, 884-888 (2012) DOI: 10.1002/jrs.3111
  56. A. Sgattoni, P. Londrillo, A. Macchi, M. Passoni *Physical Review E* **85**, 036405 (2012)
  57. M. Cantoni, R. Bertacco, A. Brambilla, M. Finazzi, L. Duo, F. Ciccacci, A. Verdini, L. Floreano, A. Morgante, M. Passoni, C. S. Casari, A. Li Bassi *Physical Review B* **85**, 155456 (2012)
  58. F. Donati, A. Mairov, C.S. Casari, M. Passoni, A. Li Bassi *Surface Science* **606**, 702-710 (2012)
  59. C. Perego, D. Batani, A. Zani, M. Passoni *Review of Scientific Instruments* **83**, 02B502 (2012)
  60. C. S. Casari, S. Foglio, M. Passoni, F. Siviero, C.E. Bottani, A. Li Bassi *Physical Review B* **84**, 155441 (2011)
  61. D. Batani, M. Passoni *Nuclear Instruments and Methods A* **653**, 1 (2012)
  62. F. Donati, G. Fratesi, M. Passoni, C. S. Casari, A. Mairov, C. E. Bottani, M. I. Trioni, and A. Li Bassi *Physical Review B* **83**, 153404 (2011) ISSN: 1098-0121
  63. L. Laguardia, A. Cremona, M. De Angeli, E. Lazzaro, S. Ratynskaia, M. Passoni, D. Dellasega, G. Gervasini, G. Grosso, R. Schiavone and E. Vassallo *New Journal of Physics*, **13** 063006 (2011) ISSN: 1367-2630
  64. F. Donati, S. Piccoli, C. E. Bottani, M. Passoni *New Journal of Physics*, **13** 053058 (2011) ISSN: 1367-2630
  65. C. Perego, A. Zani, D. Batani, M. Passoni *Nuclear Instruments and Methods A* **653**, 89-93 (2011)
  66. A. Zani, A. Sgattoni, M. Passoni *Nuclear Instruments and Methods A* **653**, 94-97 (2011)
  67. M. Passoni, D. Dellasega, G. Grosso, C. Conti, M.C. Ubaldi, C.E. Bottani *Journal of Nuclear Materials* **404**, 1-5 (2010) ISSN: 0022-3115
  68. M. Passoni, L. Bertagna, A. Zani *New Journal of Physics*, **12**, 045012 (2010) ISSN: 1367-2630
  69. M. Passoni, L. Bertagna, A. Zani *Nuclear Instruments and Methods A* **620**, 46-50 (2010) ISSN: 0168-9002
  70. A. Picone, G. Fratesi, A. Brambilla, P. Sessi, F. Donati, S. Achilli, L. Maini, M. I. Trioni, C. S. Casari, M. Passoni, A. Li Bassi, M. Finazzi, L. Duo, F. Ciccacci *Physical Review B* **81** 115450 (2010) ISSN: 1098-0121
  71. M. Passoni, L. Bertagna, A. Zani *AIP Conference Proceedings* **1209** 87-90 (2010) ISSN 0094-243X
  72. M. Passoni, L. Bertagna, T. Ceccotti, P. Martin *AIP Conference Proceedings* **1153** 159-163 (2009) ISSN: 0094-243X
  73. A. Li Bassi, A. Bailini, F. Donati, V. Russo, M. Passoni, A. Mantegazza, C.S. Casari, C.E. Bottani *Journal of Applied Physics* **105**, 124307 (2009) ISSN: 0021-8979
  74. F. Donati, P. Sessi, S. Achilli, A. Li Bassi, M. Passoni, C. S. Casari, C. E. Bottani, A. Brambilla, A. Picone, M. Finazzi, L. Duò, M. I. Trioni, and F. Ciccacci *Physical Review B*, **79**, 195430 (2009) ISSN: 1098-0121

75. C.S. Casari , S. Foglio, F. Siviero, A. Li Bassi, M. Passoni, C.E. Bottani *Physical Review B*, **79**, 195402 (2009) ISSN: 1098-0121
76. M. Passoni, F. Donati, A. Li Bassi, C. S. Casari, and C. E. Bottani *Physical Review B*, **79**, 045404 (2009) ISSN: 1098-0121
77. M. Passoni, M. Lontano, *Physical Review Letters* **101**, 115001 (2008)
78. V. Russo, A. Bailini, M. Zamboni, M. Passoni, C. Conti, C.S. Casari, A. Li Bassi, C.E. Bottani, *Journal of Raman Spectroscopy* **39**, 205-210 (2008)

## ADDITIONAL INFORMATION

Referee for International Journals (ISI - Scopus)	I serve as referee more than 20 international journals, including: <i>Nature Physics</i> , <i>Nature Communications</i> , <i>PRL</i> , <i>PRE</i> , <i>PRB</i> , <i>PRA</i> , <i>PRX</i> , <i>Phys. Plasmas</i> , <i>Phys. Lett. A</i> , <i>Europhys. Letters</i> , <i>New J. Physics</i> , <i>Nanotechnology</i> , ... ..
Contributions to international conferences and schools	I have presented results of my research in many international conferences, including more than 20 invited presentations/seminars. Since 2007, I have been also invited as lecturer at several advanced international schools (+1 italian Master on Nuclear Engineering).
Funding ID	I obtained research contracts as PI/responsible in different fields, including: a €1.887.500 project (ERC-Co Grant 2014 project ENSURE), a €150.000 project (ERC-PoC grant 2016 project INTER), a €440.000 project selected among about 4000 proposals (FIRB-Futuro in Ricerca Project SULDIS : SUPERintense Laser Driven Ion Sources) and an ongoing research collaboration (also within the frame of the EuroFusion Consortium, Euratom H2020) between ENEA, Plasma Physics Institute of CNR and Dept. of Energy of Politecnico di Milano, besides contributing to other projects.
Institutional Roles	Vice-Dean of the Industrial and Information Engineering School & Head of the Master Program in Nuclear Engineering at Politecnico di Milano
Ph.D./Master Thesis Supervisor	I have been supervising about 40 Master + 20 PhD students & 6 post-docs.
Associations	<ul style="list-style-type: none"> <li>• Istituto di Scienza e Tecnologia dei Plasmi, CNR</li> <li>• National nuclear physics institute, INFN, Italy.</li> <li>• Member of NEMAS (Center for NanoEngineered MAterials and Surfaces) of Politecnico di Milano, "center of excellence" on nanotechnology, accredited by MIUR (Italian Ministry of Research)</li> </ul>
Bibliometric record (ISI+Scopus data)	Since 2002, co-author of more than 115 papers in peer-reviewed journals, book chapters, conference proceedings. Total number of citations (ISI, Scopus): > 2400. h-Index: 25.

## TRATTAMENTO DEI DATI PERSONALI, INFORMATIVA E CONSENSO

Il D.Lgs. 30/6/2003, n. 196 "*Codice in materia di protezione dei dati personali*" regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento .

La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo il CNR al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante

Sì, acconsento

Matteo Passoni

