Rif. Decreto Rettore Università di Roma “La Sapienza” n. **1828/2018 del 12.07.2018**

FRANCESCO MARRA

Curriculum Vitae

Rome, 25/08/2018

Part I – General Information

Full Name	Francesco Marra
Citizenship	Italian
Spoken Languages	Italian, English, French

Part II – Education

Type	Year	Institution	Notes (Degree, Experience,…)
University graduation	2006	Sapienza – University of Rome	Aerospace Engineering (101/110)
PhD	2013	Sapienza – University of Rome	Materials Engineering
Licensure 01	2007	Sapienza – University of Rome / Ordine degli Ingegeneri Roma	Licensed as a profession engineer
Licensure 02	2017	MIUR	National Scientific Qualification as associate professor - SC 09/D1

Part III – Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
2006	2007	Sapienza – University of Rome	contract researcher (Co.co.pro.)
2007	2008	MATRIS Consortium (Sapienza – Tor Vergata – RomaTre – Centro Sviluppo Materiali S.p.A.)	Grant winner for industrial researcher (Vincitore di borsa di studio per il corso di alta formazione per ricercatore industriale)
2009	2011	Sapienza – University of Rome	research fellow (assegno di ricerca)
2011	2014	Sapienza – University of Rome	non-tenure Assistant Professor (ricercatore a tempo determinato A)
2016	--	Sapienza – University of Rome	non-tenure Assistant Professor (ricercatore a tempo determinato A)

IIIB – Other Appointments

Start	End	Institution	Position
2007	2007	INSTM (Interuniversity National Consortium on Materials Science and Technology)	contract researcher (Co.co.pro.)
2008	2009	INSTM (Interuniversity National Consortium on Materials Science and Technology)	contract researcher (Co.co.pro.)
2014	2016	INSTM (Interuniversity National Consortium on Materials Science and Technology)	Post-doc researcher (borsa di studio post-doc)

Part IV – Teaching experience

Year	Institution	Lecture/Course
2008 and 2010	Sapienza – University of Rome	IFTS training course (ISCED 4) "Technician for aeronautical structures made by composite material"
2012-present	Sapienza – University of Rome	**Teacher of the course: "Surface and thin films engineering and nanostructured materials". Surface and engineering module (6 CFU), Nanotechnologies Engineering (M. Sc)**
2015-present	Sapienza – University of Rome	**Teacher of the course: "Materials and Technologies" (9 CFU), Industrial Design (B. Sc)**
2009-present	Sapienza – University of Rome	lectures and exercitations in the course: "Aerospace Materials", Aerospace Engineering (B. Sc)
2009-present	Sapienza – University of Rome	lectures and exercitations in the course: "Aerospace Materials", Aeronautical Engineering (M. Sc)
2009-2016	Sapienza – University of Rome	lectures and exercitations in the course: "Materials science", Chemical Engineering (B. Sc)
2013-2015	Sapienza – University of Rome	Teaching activity and coordinator of the course: "Non-metallic materials for high temperature aerospace applications", Aerospace Engineering (B. Sc)
2013-2016	Sapienza – University of Rome	Teaching activity in the course: "Non-metallic materials for engineering applications", Mechanical Engineering (M. Sc)
2015	Summer school AIMAT-SIB	Teaching activity in the XX AIMAT SIB Summer school: "Rivestimenti e trattamenti funzionali". Lecture titled "Rivestimenti per componenti strutturali operanti ad alta temperatura ed in ambienti aggressivi" (Ischia, July 21st 2015).
2009-present	Sapienza – University of Rome	Supervision and tutoring of more than 60 Degree thesis (B. Sc and M. Sc) in Aerospace Engineering, Mechanical Engineering, Nanotechnologies Engineering, Chemical Engineering
2013-present	Sapienza – University of Rome	Supervision and tutoring of 8 PhD thesis (Materials Engineering and Nanotechnology)
2016-present	Sapienza – University of Rome	Supervision and tutoring of 3 Post-Doc Fellows (Materials Engineering and Nanotechnology)

Part V - Society memberberships, Awards and Honors

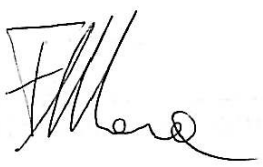
Year	Title
2006-present	Affiliate of National Interuniversity Consortium of Materials Science and Technology (INSTM), Section 1: " Advanced mechanics, construction and transport".
2006-present	Associate of Italian Materials Engineering Society (AIMAT)
2013-present	Associate of Italian Metallurgy Society (AIM)
2015-present	Associate of American Society for Metals (ASM)
2015-present	Associate of Thermal Spray Society (TSS)
2009-2010	Two times winner (2009 and 2010) of the AIMAT NETWORK COMPETITION grant during the XV and XVI AIMAT summer school
2017	Winner of “Nanoinnovation got talent” Prize at the Nanoinnovation conference

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

Year	**Title**	**Program**
2006 -2009	I - Integrated Project **NANOKER** FP6	Structural ceramic nanocomposites for top end functional applications), WP5 “Surface functionality and composites” and SP10 “Aeroengines”
2008- 2009	I – University research project	Wear resistant coatings from nanostructured precursors by traditional and liquid injection assisted thermal spray
2010 - 2011	I – University research project	Self-lubricating coatings obtained by liquid injection assisted thermal spray
2010 - 2013	I - Integrated University-Industry project **STRALE**	Materials and surface treatments for aerospace light-weight structures
2010 - 2014	I – Research project **Ambition power** funded by EC (Bando PON R&C 2007 – 2013)	Development of package, front end and industrial applications of high power density electronic modules

2011	I - ESA (European Space Agency) research project called **CSTS2**	Crew Space Transportation Vehicle on design and development of a European manned capsule for space exploration
2011 -2014	I - Research project funded by Italian Space Agency (ASI) **ASA B2**	Advanced Structure Assembly" on the development of innovative thermal protection system in plasma sprayed ceramic coating for re-entry vehicles
2011 - 2015	PI – Industrial R&D activities funded by primary industrial partner **WARTSILA** (marine engines)	Development of thermally sprayed coatings against corrosion and wear in marine environments
2012 - 2015	I – Research project funded by European Community / Regione Toscana **ATENE**	Advanced Technologies for Energy Efficiency. Development of innovative production technologies for components operating in hostile environments
2013 - 2014	I – University research project **AWARDS**	High performance low cost sensorized composite structures
2013 - 2014	I - Research project funded by European Community / Regione Lazio **VaPeToRe**	Valorizzazione dei prodotti di scarto della produzione di etichette stampate
2013 - 2015	PI - Research project funded by European Community / Regione Lombardia **SmartDesign**	Functional and smart materials for product design
2013 - 2015	PI – Industrial R&D activities funded by primary industrial partner **ZANZI** (special engine valves)	Development of coatings for protection of valves for diesel engines by hot corrosion attack
2014 - 2015	PI – Industrial R&D activities funded by industrial partner **BORGA** (thermally sprayed coatings)	Development of anti-wear and anti-corrosion coatings
2014 - 2018	I - Research project funded by MIUR / CLUSTER AEROSPAZIO **GREENING THE PROPULSION**	Development and testing of innovative coatings for oxidation protection of turbine blades in aeronautical engines
2015-2016	I – Research project **ELIOTROPO** funded by EC (Bando PON R&C "Materiali e soluzioni per sistemi fotovoltaici e solari termici di nuova concezione"), sub-contractor of **Centro Sviluppo Materiali SpA.**	Characterization of thin coatings for solar energy applications
2015-2016	I – Research project **EOMAT**	Development and characterization of thick

	funded by EC (Bando PON R&C "Sistemi e materiali innovativi per la produzione e lo stoccaggio di energia rinnovabile"), sub-contractor of **Centro Sviluppo Materiali SpA.**	coatings for anti-wear and anti-corrosion applications in wind turbines
2015 - 2017	I - Research project funded by European Community / Regione Lazio **MANUSPACE**	Special components for aerospace applications
2015 - ongoing	PI - Industrial R&D activities funded by industrial partner **AVIO S.p.A.** (rockets for satellite launchers)	Testing and developement of protective components for space qualification
2016 - 2017	PI - Industrial R&D activities funded by industrial partner **GE Oil & Gas** (turbomachinery) project **Mo.N.S.T.E.R.**	Modified Ni-based Surface Treatments for Enhanced Resistance
2016 - 2018	PI - Research project funded by European Community / Regione Lombardia **SuperMet**	Surface treatments for metallic materials for harsh environments
2017 - ongoing	PI - Industrial R&D activities funded by industrial partner **GE Oil & Gas** (turbomachinery)	Development of electroless Nickel coatings for protection of compressor blades by erosion and corrosion attack in gas extraction
2017 - ongoing	PI – University research project **ThEMProS**	Multilayer Thermal Spray Coatings for hostile environments
2017 - ongoing	PI - R&D activities funded by **CIRA** (Italian Aerospace Research Centre)	Characterization of surface modified structures for ice growth control



Keywords	Brief Description
Thermal spray coatings	Development, realization and characterization of protective coatings for application in hostile environments
Chemical coatings	Development and characterization of electroless metal and nanocomposites coatings for application against wear, corrosion, fouling; development of innovative surface modifications to tune ice- oil- and idro-phobic/philic character.
Composites	Development of materials for high temperature applications, particularly metal matrix composites and ablative materials for thermal protection systems of aerospace re-entry vehicles.
Mechanical testing	Development and optimization of procedure for mechanical characterization of material in non-standard condition (e. g. ultra-low and very high temperatures, from -190 to 1500 °C)
Performance evaluation of materials	Characterization of components, materials and coatings in severe environments reproducing the real operating condition (Wear tests, tribocorrosion tests, hot corrosion tests, ecc.)

Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
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Papers [international]	30	Scopus, Google Scholar, Iris	2009	2018
Papers [national]	2	Google Scholar, Iris	2012	2013
Books [scientific]	2	Google Scholar, Iris	2009	2011
Proceedings [international]	19	Google Scholar, Iris	2008	2018
Proceedings [national]	32	Google Scholar, Iris	2006	2018

Total Impact factor	47,25
Total Citations	450
Average Citations per Product	15
Hirsch (H) index	12
Normalized H index*	1,33

Part IX– Selected Publications

1) F. Cipri, F. Marra, G. Pulci, J. Tirillò, C. Bartuli, T. Valente: "Plasma Sprayed coatings obtained by liquid injection of secondary phases". Surface & Coatings Technology, 203 (15) **(2009)**, p. 2116-2124. DOI: 10.1016/j.surfcoat.2008.09.029 **[IF=2,139] [15 citations]**

2) G. Di Girolamo, L. Pilloni, G. Pulci, F. Marra: "Tribological characterization of WC-Co plasma sprayed coatings". Journal of the American Ceramic Society, 92 (5) **(2009),** p. 1118-1124. DOI: 10.1111/j.1551-2916.2009.03023.x **[IF=2,787] [16 citations]**

3) G. Pulci, J. Tirillò, F. Marra, F. Fossati, C. Bartuli, and T. Valente: "Carbon-phenolic ablative materials for re-entry space vehicles: Manufacturing and properties". Composites Part A: Applied Science and Manufacturing, 41 (10) **(2010)**, p. 1483-1490. DOI: 10.1016/j.compositesa.2010.06.010 **[IF=3,719] [83 citations]**

4) M. Valente, F. Sarasini, F. Marra, J. Tirillò, G. Pulci: "Hybrid recycled glass fiber/wood flour thermoplastic composites: Manufacturing and mechanical characterization". Composites Part A: Applied Science and Manufacturing, 42 (6) **(2011)**, p. 649-657. DOI: 10.1016/j.compositesa.2011.02.004 **[IF=3,719] [57 citations]**

5) G. Di Girolamo, F. Marra, C. Blasi, E. Serra, T. Valente: "Microstructure, mechanical properties and thermal shock resistance of plasma sprayed nanostructured zirconia coatings". Ceramics International, 37 (7) **(2011)**, p. 2711-2717. DOI: 10.1016/j.ceramint.2011.04.024 **[IF=2,758] [66 citations]**

6) G. Di Girolamo, F. Marra, L. Pilloni, G. Pulci, J. Tirillò, T. Valente: "Microstructure and Wear Behavior of Plasma-Sprayed Nanostructured WC-Co Coatings". International Journal of Applied Ceramic Technology, 10 (1) **(2013).** DOI: 10.1111/j.1744-7402.2011.02734.x **[IF=1,534] [21 citations]**

7) G. Di Girolamo, F. Marra, C. Blasi, M. Schioppa, G. Pulci, E. Serra, T. Valente: "High-temperature mechanical behavior of plasma sprayed lanthanum zirconate coatings". Ceramics International, 40 (7B) **(2014)**, p. 11433-11436. DOI: 10.1016/j.ceramint.2014.03.110 **[IF=2,758] [7 citations]**

8) G. Pulci, J. Tirillò, F. Marra, F. Sarasini, A. Bellucci, T. Valente, C. Bartuli: "High temperature oxidation of MCrAlY coatings modified by Al2O3 PVD overlay". Surface and Coatings Technology, 268 **(2014)**, p. 198-204. DOI:10.1016/j.surfcoat.2014.09.048 **[IF=2,139] [15 citations]**

9) G. Di Girolamo, F. Marra, M. Schioppa, C. Blasi, G. Pulci, T. Valente: "Evolution of microstructural and mechanical properties of lanthanum zirconate thermal barrier coatings at high temperature". Surface and Coatings Technology, 268 **(2014)**, p. 298-302. DOI: 10.1016/j.surfcoat.2014.07.067 **[IF=2,139] [20 citations]**

10) L. Baiamonte, F. Marra, G. Pulci, J. Tirillò, F. Sarasini, T. Valente, C. Bartuli: "High temperature mechanical characterization of plasma-sprayed zirconia-yttria from conventional and nanostructured powders". Surface and Coatings Technology, 277 **(2015)**, p. 289-298. DOI: 10.1016/j.surfcoat.2015.07.071 **[IF=2,139] [10 citations]**

11) L. Paglia, J. Tirillò, F. Marra, C. Bartuli, A. Simone, T. Valente, G. Pulci: "Carbon-phenolic ablative materials for re-entry space vehicles: plasma wind tunnel test and finite element modeling". Materials & Design, 90 **(2016)**, p. 1170-1180. DOI:10.1016/j.matdes.2015.11.066 **[IF=3,997] [14 citations]**

12) G.Pulci, L.Paglia, V.Genova, C.Bartuli, T.Valente, F.Marra: "Low density ablative materials modified by nanoparticles addition: Manufacturing and characterization". Composites Part A: Applied Science and Manufacturing, 109 **(2018)**, pp. 330-337. DOI: 10.1016/j.compositesa.2018.03.025 **[IF=4,514] [0 citations]**