

CURRICULUM VITAE
Michèle R. Lavagna

CURRENT POSITION AND CONTACT INFORMATION

Name:	Michèle R.Lavagna
Current Position:	Full Professor in Flight Mechanics
University:	Politecnico di Milano
Department:	Aerospace Science & Tecnology

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Citizenship:	Italian

EDUCATION

- 2001: Ph.D. in Aerospace Engineering, Politecnico di Milano.

Thesis title: *Space Systems for Interplanetary Missions: Automation of the Preliminary Design*

- 1998: Master Degree in Aeronautical Engineering, Politecnico di Milano, full scores.

Thesis title: *Dynamics and control of a tethered spinning space station with controlled gravity*

LANGUAGE

Mother tongue: Italian

Level L1: English

Level L2: French

ACADEMIC and PROFESSIONAL ACTIVITIES

2019 – on going	Full Professo in Flight Mechanics at Politecnico di Milano
2019 –on going	Member of the EU- Copernicus Academy
2019-on going	Affiliated member of Istituto Nazionale di Astrofisica (INAF)
2018- on going	Member of the HESAC (Human & robotic Exploration Advisory Group) of ESA
2017- 2019	Member of the Scientific Committee at the Aerospace Science & Technology Dept. Politecnico di Milano
2017-on going	Expert evaluator for the EC in the Horizon 2020 framework
2018 – on going	Member of the WG for the AIDA-HERA mission to binary asteroid (NASA-ESA)
2015-on going	Member of the PROSPECT package science User Group for the Moon landing mission; coordinator for the drilling WG (2019-on going)
2015- on going	Member of the European Space Agency Lunar Sample Return Science Definition Team
2014 – on going	Member of the International Academy of Astronautics
2014-2018	Coordinator for the Space Robotics Working Group in the SPIN-IT platform, in support to work of Agenzia Spaziale Italiana, in the European Commission H2020 SRC for Robotics, PERASPERA project
2014-2018	Politecnico di Milano representative for the Moon Mapping research program, led by Agenzia Spaziale Italiana, under bilateral agreements of China-Italy
2014-2015	Member of the Task Force within the National Aerospace Cluster (CTNA) as scientific referee for Lombardy region for the <i>Pro-Italia</i> project for preliminary study on stratospheric platform feasibility
2015-on going	Head of the ASTRA Team, composed by 1 Assistant Professor, 2 PostDocs, 8 Ph.D. candidates and 1 fresh engineer working on both internal and internationally financed studies on space engineering topics. Head of the ASTRA labs which includes the DANCE facility, 5 DOF vehicles on frictionless table for relative dynamics\robotics testing, ARGOS facility for visual based GNC, ISRU facility for regolith simulant treatment.
2011-2016	Member of the national evaluation board, appointed by the Minister of Education, University and Research for the national ASTRI project (Astrophysics supported by Italian replicant technology for mirror manufacturing), in the framework of the so called Progetti Bandiera
2013- 2019	Associate Tenured Professor in Flight Mechanics at the Aerospace Science & Technology Dept., Politecnico di Milano
2011-2013	Associate Professor in Flight Mechanics at the Aerospace Science & Technology Dept., Politecnico di Milano
2009-on going	Technical committee member for the International Workshop on Satellite Constellation and Formation Flying

2008-on going	Member of the Astrodynamics Committee for the International Astronautical Congress of the International Astronautical Federation.
2008-on going	Member of the Space Exploration & Earth Observation Working Groups in the Nereus (Network of European Regions Using Space Technologies) platform

2008-2018	Head of the Degree Office for the Aerospace Science & Tech Dept.-PoliMi
2008-2010	CEO of a SME for advanced technologies development
2008	CO-founder of a 5 partners SME for advanced technologies development
2008	Member of the evaluation board for the French-Italian Symbol-X project, on a Agenzia Spaziale Italiana mandate
2007-on going	Member of the steering committee for the PhD. Course in aerospace engineering at Politecnico di Milano, Aerospace Science & Technology Dept.
2004-2010	Assistant Professor in Flight Mechanics, Politecnico di Milano, Aerospace Science & Technology Dept.
2001-2004	PostDoc at Politecnico di Milano, Aerospace Science & Technology Dept.
2001-2003	Project engineer for the Palamede program, focused on integrating a university-made micro satellite at Politecnico di Milano
1999-2000	Visiting Ph.D. at the European Space Operation Centre to develop a prototype of autonomous scheduler for the Proba 1 micro satellite, Darmstadt, Germany
	Author of 309 scientific publications, 48 of those ranked in journals
	Supervisor of 27 PhD researches in Space Engineering
	Advisor of 149 Master Theses research in Space Engineering, 40 Bachelor Theses in Space Engineering
	Reviewer for the following journals: Celestial Mechanics, Acta Astronautica, Journal of Field Robotics, Advance in Space Research, Journal of Space Science and Technology
	Member of evaluation boards for PhD these defence for National and International Academies.
	Member of different Evaluation Board for long terms technical positions in Agenzia Spaziale Italiana

RESEARCH AND INDUSTRIAL FUNDINGS

Michèle Lavagna has a multiannual experience in the coordination and development of industrial and research project, both national and international, being responsible of many contracts in the field of the space engineering.

Her research activity is mainly focused on space vehicle dynamics and control and space system engineering.

Particular attention is given to In Situ Resource Utilisation, advanced nanosatellites from design to flight (implementation and AIV\AIT), on board autonomy, multidisciplinary optimization, sampling tools for icy soils. GNC for proximity maneuvering and planetary precision landing, Debris Removal and Mitigation,

In the following the list of the collaborations Michèle Lavagna has been and is currently involved in is reported.

YEAR	CONTRACT	ROLE
2020		
	Research contract AIVIONICS – to assess the AI techniques effectiveness for optical navigation during proximity maneuvering – ESA Contract	<i>Project Manager</i>
2019		
	Innovative Training Network ASCENSION – responsible for 2 ESRs on reusable launchers’ GNC and multi-payload delivery trajectory optimisation – European Commission funding	<i>Project Manager (for PoliMi)</i>
-	Research contract GLASS – Guide di Luce per Applicazioni multifunzionali per Sistemi Spaziali, financed by Agenzia Spaziale Italiana	<i>Project Manager</i>
-	Centralized Autonomous Relative Navigation of Multiple Spacecraft around Small Bodies – ESA Contract	<i>Project Manager</i>
2018		
-	Research contract HERMES-Technological Pathfinder – to design and develop up to launch 3 3U nanosatellites to fly in fleet for GRBs detection – under Ministry of Education and Research, cofinanced by ASI- in consortium with INAF	<i>Project Manager</i>
-	Research contract HERMES – Scientific Pathfinder – to increase the HERMES TP cluster with 3 3U nanosatellites more to perform rapid GRBs localisation – H2020 EC contract, in consortium with INAF	<i>Project Manager</i>
-	COMMERCIAL IN-SITU RESOURCE UTILISATION Demonstration Mission Preparation Phase – ESA Study, in consortium with OHB-I, OHB System, Munster University, to perform phase A\B1 design for an E2E payload for ISRU for water extraction on the Moon through commercial landers	<i>Project Manager</i>
-	LUNAR ISRU DEMONSTRATION MISSION DEFINITION STUDY ESA Study on ISRU demonstrator P\L design based on carbothermal reduction – in consortium with OHB.I and OHB-System	<i>Project Manager</i>
2016	Research contract on scientific payloads, CHRISTMAS - Cryosphere High spatial Resolution Images and Snow/ice properties via apparent Thermal inertia obtained from Multispectral Advanced optical Systems, ASI contract under UniMi	<i>Project Manager (for PoliMi)</i>

-	Research contract on technology development, PROTEO, ASI contract under INAF	<i>Project Manager (for PoliMi)</i>
-	Research Contract PLATINO (mini Piattaforma spazi aLe ad Alta TecNOlogia) fase A, ASI contract, under OHB-CGS	<i>Project Manager (for PoliMi)</i>
-	H2020 Research contract S3Net on March 2015 Compet 3 call, in consortium with Berlin University	<i>Project Manager (for PoliMi)</i>
-	Consultancy contract e.Deorbit, ESA contract, under TAS-I	<i>Project Manager</i>
2015	Research Contract VINAG, VISION/INS INTEGRATED NAVIGATION ASSISTED BY GNSS, VINAG -TSD-PP-01, Agenzia Spaziale Italiana contract in consortium with Techno System Development srl	<i>Project Manager</i>
-	Research contract AIM phase A\B1, ESA contract ITT reference AO/1-8152/14/NL/MV, in consortium with OHB GmbH	<i>Project Manager</i>
-	Research contract GLXP Landing Technology, ESA contract ITT reference RFP/IPL-PTS/FK/2014.889, in consortium with TAS-I SpA, TSD srl	<i>Study Manager</i>
-	Research Contract Lunar Drill Design, under ESA contract, in consortium with Selex-ES SpA	<i>Project Manager</i>
-	Consultancy contract e.DeOrbit -CNN, ESA contract, under TAS-F.	<i>Project Manager</i>
2014	Research contract e.DeOrbit, ESA contract ITT reference AO/1-7632/13/NL/MV, in consortium with Kayser-Threde GmbH	<i>Project Manager</i>
-	Research contract Contract COBRA extension of the “IRIDES” experiment under ESA contract, in consortium with GMV, Spain	<i>Project Manager</i>
-	Research contract, Multiple-Body Dynamics Simulation tool (For Active Satellite Removal System Modelling)-continuation, Under ESA contract	<i>Project Manager</i>
2013	Research contract PATENDER Net Parametric Characterisation and Parabolic TesT, under ESA contract, ITT Reference AO 1-7452/13/NL/RA in consortium with GMV, Spain	<i>Project Manager</i>
-	Consultancy contract Sample Canister Capture Mechanism Design And Breadboard, for the Mars Sample Return Mission, under OHB-CGS SpA contract	<i>Project Manager</i>
-	Consultancy contract Space Radiations Superconducting Shield – SR2S under OHB-CGS Spa contract	<i>Project Manager</i>
-	Research contract AMALIA Fase B1: Missione di Landing & Mobility sulla Luna, under Agenzia Spaziale Italiana contract	<i>Project Manager</i>
-	Research contract, Multiple-Body Dynamics Simulation tool (For Active Satellite Removal System Modelling), Under European Space Agency contract	<i>Project Manager</i>
-	Consultancy contract, Active Debris Removal By Adaptation Of The Vega Upper-Stage in consortium with ELV SpA, under European Space Agency contract	<i>Project Manager</i>
-	Consultancy contract, Active Debris Removal Service, in consortium with Kaiser-Threde GmbH, OHB GmbH, OHB-Sweden, under European Space Agency contract	<i>Project Manager</i>

2012	Research contract, SysNova R&D Studies Competition for Innovation 12/X03 Binary asteroid orbit modification (BEAST), in consortium with GMV Spain and Thales Alenia Space-I, under European Space Agency contract	<i>Project Manager</i>
-	Research contract, WIRELESS PASSIVE SENSORS, in consortium with Thales Alenia Space-I, and Selex-ES SpA, under European Space Agency Innovation Technology Initiative (ITI) contract	<i>Project Manager</i>
-	Research contract, R&D Studies Competition for Innovation 12/X03 Agency Contactless Earth-bound orbit modification(COBRA), in consortium with GMV Spain and Thales Alenia Space-I, under European Space Agency contract	<i>Project Manager</i>
-	Research contract, CO-II Architecture-The Neo Segment, in consortium with Telespazio S.p.A. – Astrium GmbH, under European Space Agency contract	<i>Project Manager</i>
2011	Research contract, Flight Control Team Multi-Agent System, in consortium with VEGA Space GmbH , under European Space Agency contract	<i>Project Manager</i>
-	Consultancy contract Lunar Google Xprize Missione Amalia Missione Di Landing & Mobility Sulla Luna, under Agenzia Spaziale Italiana contract	<i>Project Manager</i>
2010	Research contract In-Situ Resources Utilisation (ISRU) Architecture And Technology Study, in consortium with OHB-CGS SpA, under European Space Agency contract	<i>Project Manager</i>
2009	Research contract PRESTIGE EDUCATION PROGRAM, in consortium with Bremen University under European Space Agency contract	<i>Project Manager</i>
-	PRIN-COFIN national project: Education, University and Research Ministry (MIUR) contract	<i>Project Manager</i>
2008	Research contract: Analisi Multidisciplinare per Identificazione di Microseepage: in collaboration with Chemical, Mathematics, Energy Dept. of Politecnico di Milano, under ENI SpA contract	<i>Project Manager</i>
-	Consultancy contract TOMORROW BIRD, in consortium with Carlo Gavazzi Space S.p.A under European Space Agency contract	<i>Project Manager</i>
2007	Research contract Distributed Agents For Autonomy , in consortium with SciSys Ltd, under European Space Agency contract	<i>Project Manager</i>
-	Research contract Autonomous Planning\Scheduling INITIATIVE in consortium with VEGA GmbH, under European Space Agency contract	<i>Project Manager</i>
-	Research contract SURFACE ARCHITECTURES, in consortium with OHB-CGS SpA under European Space Agency contract	<i>Project Manager</i>
-	Study PRIN-COFIN: validazione sperimentale di algoritmi per l'ottimizzazione robusta per la realizzazione, guida e controllo di formazioni di veicoli per lo spazio ad alta autonomia, under Ministry	<i>Project Manager</i>

	of Education, University and Research (MIUR) national contract	
-	Research contract CEF-CONCURRENT ENGINEERING FACILITY: under Thales Alenia Space S.p.A. Italia and Agenzia Spaziale Italiana contract	<i>Project Manager</i>
2006	Research contract GLOBAL TRAJECTORY OPTIMISATION: Can We Prune the Solution Space when Considering Deep Space Manoeuvres? Under European Space Agency -Ariadna contract	<i>Technical Engineer</i>
2005	Research contract SATELLITE PER MISSIONE OTTICA-MIOSAT, in consortium with Rehinmetall SpA under Agenzia Spaziale Italiana contract	<i>Project Manager</i>
-	Consultancy contract NUCLEAR MULTI-MODULE ISRU Mission – Lunar Exploration Architecture, under Alcatel Alenia Space-Italia	<i>Project Manager</i>
-	Consultancy contract MULTIMISSION AUTOMATIC SCHEDULER in consortium with Telespazio SpA, under European Space Agency contract	<i>Technical Engineer</i>
2004	Study PRIN-COFIN: Ottimizzazione globale multiobiettivo per la selezione di componenti di sistema in fase preliminare di progetto per applicazioni spaziali under Ministry of Education, University and Research (MIUR) national contract	<i>Project Manager</i>
2003	Consultancy contract under European Space Agency, Concurrent Design Facility	<i>Project Manager</i>
2002	Research contract SMART-FDIR, in consortium with Alenia Spazio-I under ESA contract	<i>Technical Engineer</i>
2001	Intelligent Dynamic (Re-) Scheduler for PROBA, under ESA contract	<i>Technical Engineer</i>

TEACHING ACTIVITIES

Michèle Lavagna has several years of experience in teaching at University space flight dynamics and space system design topics.

YEAR	RESPONSABILITY
2019	Responsible for the Concurrent Engineering Challenge, third Edition – at Politecnico di Milano, selected by ESA Academy to run a 5 days feasibility studies in Concurrent Engineering environment
2019	Supervisor for 2 ESRs within the EC-ITN project ASCENSION; responsible for secondment of 2 ESRs in the same PhD network
2019	Italian Tutor at post-Alpbach at ESA Academy
2019	Italian Tutor at Alpbach school as small sats system engineering expert
2018	Italian Tutor at post-Alpbach at ESA Academy
2018	Italian Tutor at Alpbach school as small bodies sampling expert
2015-2016	Supervisor for the SatLeash experiment, selected for Parabolic flight in the Fly Your Thesis! ESA program, 2015 edition. Experiment designed, implemented and flown by a team of 5 students, PhD and graduated.
2012-2014	Principal tutor for the Alta Scuola Politecnica (www.asp.it) D-Verse: The space Park project, to implement a center for the promulgation of the space activities to citizens, located at villa Confalonieri di Merate, LC-Italy
2012-2015	Co-advisor for the PhD thesis <i>Coupled Orbit-Attitude Mission Design in the Circular Restricted 3-Body Problem</i> under development at Purdue University, West Lafayette, Indiana,US
2011- 2013	Tutor for the Alta Scuola Politecnica “NECV: Deep Space Missions: NEA Exploration Crew Vehicle” project, devoted to study manned missions to asteroids
2010- on going	Lecturer at the Master Degree course in Multi-Agents System at Politecnico di Milano, Electronics and Information Technology Dept.
2009 –2016	Chair of the Orbital Mechanics course, Master Degree course in Space Engineering, Politecnico di Milano, Aerospace Science & Technology Dept.
2008-2010	Principal tutor for the Alta Scuola Politecnica “Space Hotel Design-SHD” study, feasibility study on space tourism marketing
2007	Lecturer at Massachussets Institute of Technology (MIT) for a short course on astrodynamics for the robotics lab students, at Mechanical Engineering Dept.
2007	Lecturer at Alenia Alcatel, Torino, Italia, within a introductive course on astrodynamics
2005- on going	Chair of the Space Mission Design course, Master Degree course in Space Engineering,

	Politecnico di Milano, Aerospace Science & Technology Dept.; the course runs 3\4 phase 0\A studies with students' teams of 10 members with a CE approach (<i>see link at footnote¹</i>)
2002-2010	Chair of the Meccanica del Volo Spaziale course, Bachelor Degree course in Aerospace Engineering, Politecnico di Milano, Aerospace Science & Technology Dept
2001-2002	Contract teacher for the Space Design course, Master Degree course in Aerospace Engineering, Politecnico di Milano, Aerospace Science & Technology Dept
1998-2008	Lecturer for the Meccanica Orbitale course, Master Degree course in Aerospace Engineering, Politecnico di Milano, Aerospace Science & Technology Dept
1998- on going	Supervisor of 27 Ph.D. researches in the space engineering field; advisor and co\advisor of 149 Master theses in Aerospace Engineering; advisor of 40 bachelor theses in aerospace engineering; external reviewer for 13 PhD theses in the space engineering field both for national and international academies.

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https://www4.ceda.polimi.it/manifesti/manifesti/controller/ManifestoPublic.do?EVN_DET TAGLIO_RIGA_MANIFESTO=evento&aa=2017&k_cf=225&k_corso_la=470&k_indir=NDE&codDescr=093460&lang=EN&semestre=2&anno_corso=2&idItemOfferta=131044&idRiga=216283

PUBLICATIONS

The scientific production is reported hereinafter.

Publications are clustered according to their classification.

In particular, she produced at the time being 48 papers published on ranked journals in the aerospace field 44 of them classified by ISI\Scopus; 1 contribution to monograph; 260 papers in conference proceedings.

The scientific content of the papers is related to the dynamics and control for space systems and the robotic and human complex space system design.

Journal Papers (ISI\Scopus)

1. A.E.Finzi, M.Lavagna, Dynamics and Control of 1g Rotating Two-Body Tethered Station, *Journal of the Chinese Society of Mechanical Engineers*, vol.21-no.1, pgg. 57-65, February 2000
2. M.Lavagna,A.E.Finzi, Equilibrium Analysis of a Large Multi-Hinged Space System, *Acta Astronautica* vol.53,no.1, July 2003, pgg.9-20
3. M.Lavagna,A.E.Finzi, Large multi-hinged space systems: a parametric stability analysis”, *Acta Astronautica*, vol.54, no.4, February 2004, pp. 295-305
4. A.E.Finzi, M.Lavagna, G.Rocchitelli, DeeDri A drill-soil system modelization for future Mars exploration, *Planetary and Space Science - Exploring Mars Surface and its Earth Analogues-*, Elsevier, vol.52, issue 1-3, January-March 2004, pp.83-89
5. Lavagna M., A. Povoleri, A.E. Finzi, Interplanetary mission design with aero-assisted manoeuvres multi-objective evolutive optimization, *Acta Astronautica*. vol. 57 (2-8), pp. 498-509, 2005
6. Armellin R., Lavagna M., Ercoli Finzi A., Aero-gravity Assist Maneuvers: Controlled Dynamics Modeling and Optimization, *Celestial Mechanics and Dynamical Astronomy*, Vol. 95, N. 1-4, May 2006, 2006, p. 391-405
7. Armellin R., Lavagna M., Starkey Ryan P, Lewis Mark J., Aerogravity Assist Maneuvers: Coupled Trajectory and Vehicle Shape Optimization, *Journal of Spacecraft and Rockets*, Vol. 44, N. 5, 2007, p. 1051-1059
8. Di Lizia P., Armellin R., Lavagna M., Application of High Order Expansions of Two-Point Boundary Value Problems to Astrodynamics, *Celestial Mechanics and Dynamical Astronomy*, Vol. 102, N. 4, 2008, p. 355-375
9. F. Castellini, A. Simonetto, R. Martini, Lavagna, M.R. A Mars Communication Constellation for Human Exploration and Network Science, *Advances in Space Research*, Vol. 45, N. 1, 2010, p. 183-199
10. R. Armellin, P. Di Lizia, F. Topputo, Lavagna M.R., F. Bernelli Zazzera, M. Berz, Gravity Assist Space Pruning Based On Differential Algebra, in *Celestial Mechanics & Dynamical Astronomy*, Vol. 106; P. 1-24, 2010
11. M.Valli, M.Lavagna,T. Panozzo, Design of a robust control law for the VEGA launcher ballistic phase, *Acta Astronautica*, vol.71,p.92-98,2012
12. F.Castellini, M.R.Lavagna, Comparative Analysis of Global Techniques for Performance and Design Optimization of Launchers, *Journal of Spacecraft and Rockets*, Vol.49, p.274-285,2012
13. R. Armellin, P. Di Lizia, M. Lavagna, High-Order Expansion of the Solution of Preliminary Orbit Determination Problem, *Celestial Mechanics & Dynamical Astronomy*, vol. 112, p. 331-352, 2012
14. R. Armellin, A. Morselli, P. Di Lizia, M. Lavagna, Rigorous Computation of Orbital Conjunctions, *Advances In Space Research*, vol. 50, p. 527-538, 2012

15. *M. Valli, R. Armellin, P. Di Lizia, M. Lavagna*, Nonlinear Mapping of Uncertainties in Celestial Mechanics, *Journal of Guidance Control and Dynamics*, vol. 36,2013, p. 48-63
16. *M.Valli,R.Armellin, P. Di Lizia P.,M. Lavagna*, Nonlinear Filtering Methods for Spacecraft Navigation Based on Differential Algebra, *Acta Astronautica*, Vol. 94, N. 1, 2014, p. 363-374
17. *Castellini F., Lavagna M., Riccardi A., Buskens C.*, Quantitative Assessment of Multidisciplinary Design Models for Expendable Launch Vehicles, *Journal of Spacecraft and Rockets*, (2013) doi: 10.2514/1.A32527
18. *P.Tadini, U.Tancredi, M.Grassi, L.Anselmo, C.Pardini,A.Francesconi, F.Branz, F.Maggi, M.Lavagna.L.T.DeLuca, N.Viola, S.Chiesa, V.Trushlvakov, T.Shimada*, Active debris multi-removal mission concept based on hybrid propulsion, *Acta Astronautica*,vol.103, Oct-Nov 2014, pp. 150-165
19. *P. Gamba, E.Goldoni, P. Savazzi, P.G. Arpesi, C.Sopranzi, J.F. Dufour, M.Lavagna*, Wireless Passive Sensors for Remote Sensing of Temperature on Aerospace Platforms, *IEE Sensors Journal*, vol. 14, no. 11, November 2014
20. *A.Knutson, D.Guzzetti, K.Howell, M.Lavagna*, Planar Attitude Responses in a Coupled Orbit-Attitude Dynamical Model for Motion in Earth-Moon Lyapunov Orbits, *Journal of Guidance, Control, and Dynamics*, doi: 10.2514/1.G000469
21. *G. Di Mauro, M. Schlotterer, S. Theil, M. Lavagna*, Nonlinear Control for Proximity Operations Based on Differential Algebra, *Journal of Guidance, Control and Dynamics* doi: 10.2514/1.G000842
22. *R.Benvenuto, S.Salvi. M.Lavagna*, Dynamics Analysis and GNC design of flexible systems for space debris active removal, *Acta Astronautica* (2015), <http://dx.doi.org/10.1016/j.actaastro.2015.01.014>
23. *P.Lunghi, M.Lavagna, R.Armellin*, A Semi-Analytical Guidance Algorithm for Autonomous Landing. *Advances in Space Research*, doi:10.1016/j.asr.2015.02.022
24. *R. Carta, D. Filippetto, M. Lavagna, F. Mailland, P. Falkner, J. Larranaga*, Sample Canister Capture Mechanism for Mars Sample Return: functional and environmental test of the elegant breadboard Model, *Acta Astronautica*, Volume 117, December 2015, Pages 99–115, doi:10.1016/j.actaastro.2015.07.009
25. *Fabio Ferrari, Michèle Lavagna, Kathleen C. Howell*, Dynamical Model of Binary Asteroid Systems Through Patched Three-Body Problems", *Celestial Mechanics and Dynamical Astronomy*, 1-21, DOI 10.1007/s10569-016-9688-x
26. *R.Benvenuto, M.Lavagna*, Multibody dynamics driving GNC and system design in tethered nets for active debris removal, *Advance in Space Research* Volume 58, Issue 1, 1 July 2016, Pages 45–63
27. *P.Lunghi, M.Ciarambino, M.Lavagna*, A multilayer perceptron hazard detector for vision-based autonomous planetary landing *Advances in Space Research* Volume 58, Issue 1, 1 July 2016, Pages 131–144
28. *F. Ferrari, A.Tasora, M.Lavagna, P.Masarati*, N-body gravitational and contact dynamics for asteroid aggregation *Journal Multibody System Dynamics* (2016)
29. *V.Pesce, M.Lavagna, R.Bevilacqua*, Stereovision-Based Pose and Inertia Estimation of Unknown and Uncooperative Space Objects, *Advances in Space Research* ASR-D-16-00323R2
30. *A.Colagrossi, M.Lavagna*, Preliminary results on the dynamics of large and flexible space structures in Halo orbits *Acta Astronautica*, May 2017, Vol.134, pp.355-367
31. *Alberto Medina, Lorenzo Cercós, Raluca M. Stefanescu, Riccardo Benvenuto, Vincenzo Pesce, Marco Marcon, Michèle Lavagna, Iván González, Nuria Rodríguez López, Kjetil Wormnes* Validation results of satellite mock-up capturing experiment using nets, *Acta Astronautica* Volume 134, Pages 314-332 , May 2017

32. *F.Ferrari, M.Lavagna*, Suitable Configurations for Triangular Formation Flying about Collinear Libration Points under the Circular and Elliptic Restricted Three-Body Problems, *Acta Astronautica*, Vol. 147, 2018, p. 374-382, DOI: 10.1016/j.actaastro.2016.08.011
33. *F.Fuschino & al.*, Hermes: an Ultra-Wide Band x and Gamma-Ray Transient Monitor on Board a Nano-Satellite Constellation, on Nuclear Instruments and Methods in Physics Research Journal, DOI: 10.1016/j.nima.2018.11.072, 2018
34. *L.Amati & al.*, The THESEUS Space Mission Concept: Science Case, Design and Expected Performances Source: *Advances in Space Research*, Vol. 62, N. 1, 2018, p. 191-244
35. *L. Bucci, M.Lavagna, D. Guzzetti, K. Howell*, Periodic Orbit-Attitude Solutions Along Planar Orbits in a Perturbed Circular Restricted Three-Body Problem for the Earth-Moon System *Acta Astronautica*, Vol. 147, 2018, p. 152-162
36. *A.Colagrossi, M.Lavagna*, Dynamical Analysis of Rendezvous and Docking with Very Large Space Infrastructures in Non-Keplerian Orbits, *CEAS Space Journal*, Vol. 10, N. 1, 2018, p. 87-99
37. *A.Colagrossi, M.Lavagna*, Fully Magnetic Attitude Control Subsystem for Picosat Platforms *Advances in Space Research*, Vol. 62, N. 12, 2018, p. 3383-3397
38. *F. Ferrari, M. Lavagna*, Ballistic Landing Design on Binary Asteroids: the Aim Case Study Source: *Advances in Space Research*, Vol. 62, N. 8, 2018, p. 2245-2260
39. *A. Capannolo, F.Ferrari, M. Lavagna*, Families of Bounded Orbits Near Binary Asteroid 65803 Didymos, *Journal of Guidance Control and Dynamics*, Vol. 42, N. 1, 2019, p. 189-198
40. *V.Pesce, M.F.Haydar, M.Lavagna, M. Lovera*, Comparison of Filtering Techniques for Relative Attitude Estimation of Uncooperative Space Object, *Aerospace Science and Technology*, Vol. 84, 2019, p. 318-328
41. *V.Pesce, R.Opromolla, S.Sarno, M. Lavagna, M.Grassi*, Autonomous Relative Navigation Around Uncooperative Spacecraft Based on a Single Camera, *Aerospace Science and Technology*, Vol. 84, 2019, p. 1070-1080
42. *A.Rivolta, P.Lunghi, M.Lavagna*, GNC & robotics for on orbit servicing with simulated vision in the loop, *Acta Astronautica*, vol. 162, 2019
43. *V.Pesce, S.Silvestrini, M.Lavagna*, Radial Basis Function Neural Network Aided Adaptive Extended Kalman Filter for Spacecraft Relative Navigation, *Aerospace Science and Technology*, Vol. 96, 2020
44. *F.Ferrari, M.Lavagna, E.Blanquez*, A Parallel-GPU Code for Asteroid Aggregation Problems with Angular Particles, *Monthly Notices of the Royal Astronomical Society*, in press DOI:10.1093/mnras/stz3458

Journal Papers

1. *M.Lavagna, A.E.Finzi*, Equilibrium Configurations of a Large Multi-Hinged Space System, *International Journal of Mechanics and Control*, vol.1, No.2, pgg.35-47, January 2001
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