

Curriculum Vitae (November, 2022)

Personal Information

Name and title: **Ferrari Fabio, Ph.D.**

Date of birth: December 18th, 1988

Nationality: Italian

Contacts:  Mobile phone: +39 338 4932892
 Email: fabio1.ferrari@polimi.it; fabio.ferrari@unibe.ch
Personal email: fabiolouf@gmail.com

Researcher profile:  Google Scholar: <https://goo.gl/pfNU8W>
 Research Gate: <https://goo.gl/Gtnuyk>
 Orcid: 0000-0001-7537-4996



Research interests

My research activities are in the field of small-body dynamics and evolution. These include astrodynamics in highly non-Keplerian systems, with applications to space mission design, spacecraft-soil interaction, and planetary science investigations on the internal structure, formation and evolution of asteroids. I am currently the PI of the ERC project TRACES and from 2020 I am the PI of a Swiss National Science Foundation's Ambizione Grant. In the years 2018-2020 I was the PI of a European Commission's Marie Skłodowska-Curie Individual Fellowship – Global Fellowship. I have been awarded ~2.6M€ of research grants as PI, and I am the author of 35 indexed publications (Scopus) and about 70 works in total. As of February 2022, I hold the Italian National Scientific Habilitation (ASN) for the role of Associate Professor (sector 09/A1 – Ingegneria Aeronautica, Aerospaziale e Navale).

Employment history and current positions

Oct 2022 – present	Assistant Professor Politecnico di Milano, Italy
Oct 2022 – present	Visiting Professor University of Bern, Switzerland
Nov 2020 – Sep 2022	Senior Research Associate University of Bern, Switzerland
May 2019 – May 2021	Visiting Postdoc NASA Jet Propulsion Laboratory, USA
May 2019 – Oct 2020	Postdoctoral Research Fellow Politecnico di Milano, Italy
May – Jul 2019	Visiting Scientist Observatoire de la Côte d'Azur, France
May 2018 – May 2019	Postdoctoral Research Fellow NASA Jet Propulsion Laboratory, USA
Jan 2017 – May 2018	Postdoctoral Research Fellow Politecnico di Milano, Italy
Apr – Jun 2013	Visiting student researcher (M.Sc. Thesis) Purdue University, USA
Sep – Oct 2012	Intern GMV, Spain

Education

27 Jan 2017 Date of defence	Ph.D. in Aerospace Engineering (grade: Cum Laude), Politecnico di Milano, Italy. Dissertation title: “Non-Keplerian Models for Mission Analysis Scenarios About Small Solar System Bodies”; supervisor: Prof. M. Lavagna.
22 Jul 2013 Date of defence	M.Sc. in Space Engineering (grade: 110/110 Cum Laude), Politecnico di Milano, Italy. Thesis title: “Formation Flying Dynamics in Circular Restricted Three-Body Problem and Applications to Binary Asteroid Systems”; supervisor: Prof. M. Lavagna, co-supervisor: Prof. K.C. Howell (Purdue University, USA)

Coordination and Direction of Research Projects (as PI/Personal Grants)

May 2023 – Apr 2028	TRACES (Transitions in Rubble-pile Asteroid Chaotic Environment and granular Structures) . EC ERC Starting Grant, value: 1.5 M€.
Nov 2020 – present	Dynamics and evolution of small bodies in the Solar System SNSF Ambizione Grant, value: 907 kCHF (922 k€).
May 2018 – May 2020	GRAINS (Gravitation of Rubble-pile Asteroid with Internal N-body Structure) EC Marie Skłodowska-Curie Global Fellowship, value: 176 k€. Host institutions: Politecnico di Milano, Italy (May 2019 – May 2020); NASA JPL, USA (May 2018 – May 2019).

Involvement in Space Missions and Projects (as Co-I/Task Lead, or Team Member)

Sep 2022 – present	LUMIO – Lunar Meteoroid Observer Mission (ESA, currently in Phase B) Lead of the Science Team.
Jul 2020 – present	HERA Milani CubeSat mission (ESA, launch in 2024) Member of Mission Analysis and GNC Team. Trajectory design in a non-Keplerian environment for a CubeSat in the close proximity of binary asteroid Didymos.
May 2020 – present	DART – Double Asteroid Redirection Test mission (NASA, ongoing mission) Member of the Investigation Team: Working Groups “Dynamics”, “Ejecta” and “Impact”, to investigate pre- and post-impact dynamics of binary asteroid Didymos.
Jan 2019 – present	HERA mission (ESA, launch in 2024) Core member of the Investigation Team: Working Groups “Dynamics”, “Data Analysis, Exploitation, Interpretation”, “Close-Proximity Operations”, to investigate dynamics of binary asteroid Didymos and CubeSat-soil interactions on asteroids.
Jun – Oct 2020	Osservatorio Space Economy (PoliMi) Team member. Spacecraft/payload requirements for applications related to Space Economy.
Apr – Jul 2019	ENCELADE (ISSI-Bern) Member of the International Science Team. Investigations of planetary ring dynamics.
Sep 2018 – May 2019	Cricket (NASA/JPL, phase A study) Task lead of Close-Proximity Engineering. Lander-soil interaction on asteroids.
May 2016 – May 2017	S3NET (EC H2020) Member of the Mission Analysis team. Spacecraft formation flying.
Apr 2016 – Mar 2017	Asteroid Redirect Robotic Mission (NASA/ASI, phase A/B study) Member of the Mission Analysis team. Trajectory design in the proximity of asteroids.
Mar 2015 – Nov 2016	Asteroid Impact Mission/AIDA mission (ESA/NASA, phase A/B1 study) Lead of Mission Analysis. Interplanetary transfer, rendezvous and landing on asteroid.
Jun – Oct 2014	Mars Sample Return mission (NASA/ESA, experimental campaign) Member of the parabolic flight experiment team. Participation to ESA’s 61th Parabolic, Flight Campaign with experiment “Sample Canister Capture Mechanism”.
Feb – Jul 2014	Cobra-IRIDES Experiment mission (ESA, phase A/B study) Member of GNC Team. Numerical simulation of experiment, spacecraft formation flying.
Dec 2013 – Feb 2014	MUST (ESA) Member of the software development team. Software for multi-body dynamics of spacecraft.

Institutional responsibilities

Sep 2016 – Oct 2020 **Representative of Research Fellows and Member of the Department Council**
Department of Aerospace Science and Technology, Politecnico di Milano, Italy

Supervision of students

AY 2021 – present Supervisor of 1 Ph.D. student (J. Wimarsson), Ph.D. in Physics, University of Bern, CH
AY 2015 – 2022 Co-supervisor of 18 M.Sc. thesis, M.Sc. in Space Engineering, Politecnico di Milano, Italy

Teaching activities

AY	Role	Class	Level
2022 – 2023	Chair	Dynamics of Aerospace Systems	B.Sc., Politecnico di Milano
2017 – 2018	Teaching Assistant	Orbital Mechanics	M.Sc., Politecnico di Milano
2017 – 2018	Teaching Assistant	Space System Design	M.Sc., Politecnico di Milano
2017 – 2018	Teaching Assistant	Introduction to Space Mission Analysis	B.Sc., Politecnico di Milano
2016 – 2017	Teaching Assistant	Orbital Mechanics	M.Sc., Politecnico di Milano
2016 – 2017	Teaching Assistant	Space System Design	M.Sc., Politecnico di Milano
2016 – 2017	Teaching Assistant	Introduction to Space Mission Analysis	B.Sc., Politecnico di Milano
2015 – 2016	Teaching Assistant	Orbital Mechanics	M.Sc., Politecnico di Milano
2015 – 2016	Teaching Assistant	Space System Design	M.Sc., Politecnico di Milano
2015 – 2016	Teaching Assistant	Introduction to Space Mission Analysis	B.Sc., Politecnico di Milano
2014 – 2015	Teaching Assistant	Orbital Mechanics	M.Sc., Politecnico di Milano
2014 – 2015	Teaching Assistant	Space System Design	M.Sc., Politecnico di Milano
2014 – 2015	Teaching Assistant	Introduction to Space Mission Analysis	B.Sc., Politecnico di Milano
2014 – 2015	Tutor	Introduction to Computer Science and MatLab Coding	B.Sc., Politecnico di Milano
2013 – 2014	Teaching Assistant	Orbital Mechanics	M.Sc., Politecnico di Milano
2013 – 2014	Teaching Assistant	Space System Design	M.Sc., Politecnico di Milano
2013 – 2014	Tutor	Experimental Physics	B.Sc., Politecnico di Milano

Active membership in scientific societies

Jun 2022 – present Member of International Astronomical Union (IAU)
Jan 2021 – present Associate of NCCR (National Centre of Competence in Research) PlanetS, SNSF Switzerland
Sep 2019 – present Early Scientist Member of Europlanet
Jul 2018 – present Associate of Committee on Space Research (COSPAR)
May 2014 – present Member of American Institute of Aeronautics and Astronautics (AIAA)
Jan – Dec 2015 Student member of Associazione Italiana di Aeronautica e Astronautica (AIDAA)

Memberships in panels, boards and individual scientific reviewing activities

Nov 2021 – present	Expert reviewer for European Commission’s Marie Skłodowska-Curie Postdoctoral Fellowship Program (MSCA-PF 2021 call)
Nov 2021 – present	Expert reviewer for NASA Postdoctoral Program (NPP 2021-11, 2022-04 calls)
Oct 2021	External reviewer for 1 MSc Thesis at Politecnico di Milano
Jun 2022 – present	Guest Editor for the international journal “Aerospace”
Oct 2015 – present	Reviewer for 15 international scientific journals (52 reviews verified on Publons), including “Journal of Guidance, Control, and Dynamics”, “Monthly Notices of the Royal Astronomical Society”, “Nonlinear Dynamics”, “Advances in Space Research”, “Icarus”.
Sep – Oct 2014	International Space Education Board (ISEB) fellow: <ul style="list-style-type: none">- Participation to training activities and meetings with the Heads of Space Agencies (CSA, ESA, JAXA, KARI, NASA, SANSA, VSSEC)- Member of the Cross Cultural Activities Board

Prizes, awards and fellowships

Nov 2022	ERC Starting Grant. European Commission
Dec 2021	Top 10 Reviewers for “Advances in Space Research” in the year 2021 (to be featured in COSPAR’s Space Research Today)
Dec 2021	Excellent Reviewer for the “Journal of Guidance, Control, and Dynamics”
Aug 2020	Ambizione Fellowship. Swiss National Science Foundation
Jan 2018	Marie Skłodowska-Curie Global Fellowship. European Commission
Apr 2015	Best paper award in “Research Student Competition: Making the World Aware”. 2015 IAA Planetary Defence Conference. Frascati (RM), Italy
Sep 2014	Sponsorship by ESA for the 65th International Astronautical Congress. Toronto, Canada
Mar 2013	Prize “Thesis abroad” for M.Sc. thesis. Politecnico di Milano

Invited scientific talks

25 Mar 2022	AIDAA Educational Series and Academy - Challenges and opportunities for the aerospace frontier research offered by the ERC and the MSCA programme.
17 Nov 2021	CHS/WP Colloquium (Bern): “What we (don’t) know about the interior of rubble-pile asteroids”
22 Feb 2021	AIDAA Educational Series and Academy - Challenges and opportunities for the aerospace frontier research offered by the ERC and the MSCA programme.
8 Jan 2021	TAPS (Bern): “N-body simulations of planetary ring dynamics with non-spherical fragments”
9 Jul 2019	ISSI (Bern): “N-body simulations of planetary ring dynamics with non-spherical fragments”
27 Jun 2019	Observatoire de la Côte d’Azur: “N-body simulations of rubble-pile asteroid dynamics using non-spherical fragments”
2, 6, 9 May 2019	NASA/JPL: “Asteroids as Rubble Piles”
15 Feb 2019	AAAS Conference (Washington DC): Talk in session “Research Funding: Exploring Programs in the European Union” as EC-MSCA ambassador
1 Nov 2018	NASA/JPL: “A code for the study of granular and rubble-pile dynamics with non-spherical particles”

Outreach activities

- Apr 2021: Press interview on the Planetary Defence Conference (Swiss TV news).
- Jan 2021: Interview on Satellite Evolution Asia (Jan-Feb 2021 Issue).
- Sep 2020: Press interview on Hera Milani mission (Italy).
- Jul 2020: Seminar to the general public (Bobbio-PC, Italy).
Title of talk (translated from italian): “Asteroids: resources or threats?”
- Oct 2019: Seminar to the general public (Piacenza, Italy).
Title of talk (translated from italian): “Asteroids: resources or threats?”
- Nov 2018: Invited article on the science website “Science Trends” titled “Landing on Binary Asteroids”.
- Nov 2018: Press interview on NASA/JPL’s Insight landing on Mars (Italy).
- Sep 2018: Participation to the 2018 European Researcher’s Night (outreach to the general public, Milano, Italy)
- Apr 2018: Seminar to the general public (Piacenza, Italy). Title of talk (translated from italian): “Space in the service of Earth: challenges and opportunities”
- Apr 2018: Press release on GRAINS project/EC Marie Skłodowska-Curie Global Fellowship (Italy).
- Sep 2017: Participation to the 2017 European Researcher’s Night (outreach to the general public Milano, Italy)
- Jun 2017: Participation to “DAER Open Labs” at the Department of Aerospace Science and Technology, Politecnico di Milano (outreach activities to secondary schools and general public, Milano, Italy)
- Sep 2014: Outreach activities for primary and secondary schools at the International Student Zone at the International Astronautical Congress (Toronto, Canada)

Speaker at National and International Conferences

- Apr 2021 7th IAA Planetary Defense Conference (PDC), virtual meeting.
- Sep 2019 European Planetary Science Congress (EPSC) with AAS Division for Planetary Science (DPS), Geneva, CH
- Sep 2019 AIDA International Workshop, Roma, IT
- Jan 2019 AAS/AIAA Space Flight Mechanics Meeting, Maui, HI, USA
- Sep 2018 European Planetary Science Congress (EPSC), Berlin, DE
- Jul 2018 42nd COSPAR Scientific Assembly, Pasadena, CA, USA
- Apr 2017 1st Chrono-MBDyn User Meeting, Parma, IT
- Mar 2016 6th International Conference on Astrodynamics Tools and Techniques (ICATT), Darmstadt, DE
- Feb 2016 XIII Congresso Nazionale di Scienze Planetarie, Bormio, IT
- Feb 2016 26th AAS/AIAA Space Flight Mechanics Meeting, Napa, CA, USA
- Nov 2015 AIDAA XXIII Conference, Torino, IT
- Aug 2015 2015 AAS/AIAA Astrodynamics Specialist Conference, Vail, CO, USA
- Jun 2015 ECCOMAS Thematic Conference on Multibody Dynamics, Barcelona, ES
- Jun 2015 8th International Workshop on Satellite Constellations and Formation Flying (IWSCFF), Delft, NL
- Apr 2015 4th IAA Planetary Defense Conference (PDC), Frascati, IT
- Sep 2014 65th International Astronautical Congress (IAC), Toronto, CA
- Apr 2014 2014 PEGASUS-AIAA Student Conference, Prague, CZ
- Jan 2014 24th AAS/AIAA Space Flight Mechanics Meeting, Santa Fe, NM, USA

Scientific Habilitations

- Feb 2022 – 2031 Italian National Scientific Habilitation (ASN) for the role of Associate Professor
Sector 09/A1 – INGEGNERIA AERONAUTICA, AEROSPAZIALE E NAVALE.

	H-index		Citations	
	Scopus	GScholar	Scopus	GScholar
Journal papers (22)	TOT			
	9	12	212	448
• A. M. Stickle, M. E. DeCoster, C. Burger, W. K. Caldwell, D. Graninger, K. M. Kumamoto, R. Luther, J. Ormö, S. Raducan, E. Rainey, C. M. Schäfer, J. D. Walker, Y. Zhang, P. Michel, J. M. Owen, O. Barnouin, A. F. Cheng, S. Cochran, G. S. Collins, T. M. Davison, E. Dotto, F. FERRARI, M. I. Herreros, S. L. Ivanovski, M. Jutzi, A. Lucchetti, E. Martellato, M. Pajola, C. S. Plesko, M. Bruck Syal, S. R. Schwartz, J. M. Sunshine and K. Wünnemann. Effects of impact and target parameters on the results of a kinetic impactor: predictions for the Double Asteroid Redirection Test (DART) mission. Planetary Science Journal, Volume 3, Number 11, November 2022, doi: 10.3847/PSJ/ac91cc	-		2	
• M. Rusconi, F. FERRARI, F. Topputo. The effect of a rocky terrain for CubeSat landing on asteroid surfaces. Advances in Space Research (in press), doi: 10.1016/j.asr.2022.10.056	-		1	
• T. Statler, S. Raducan, O. Barnouin, M. DeCoster, S. Chesley, B. Barbee, H. Agrusa, S. Cambioni, A. Cheng, E. Dotto, S. Eggel, E. Fahnestock, F. FERRARI, D. Graninger, A. Herique, I. Herreros, M. Hirabayashi, S. Ivanovski, M. Jutzi, O. Karatekin, A. Lucchetti, M. Luther, R. Makadia, F. Marzari, P. Michel, N. Murdoch, R. Nakano, J. Ormö, M. Pajola, A. Rivkin, A. Rossi, P. Sánchez, S. Schwartz, S. Soldini, D. Souami, A. Stickle, P. Tortora, J. Trigo-Rodríguez, F. Venditti, J. B. Vincent and K. Wünnemann. After DART: Using the first full-scale test of a kinetic impactor to inform a future planetary defense mission. Planetary Science Journal, Volume 3, Number 10, October 2022, doi: 10.3847/PSJ/ac94c1	-		-	
• E. Fahnestock, A. Cheng, S. Ivanovski, P. Michel, S. Raducan, A. Rossi, P. Abell, S. Chesley, E. Dotto, F. FERRARI, L. Kolokolova, E. Kramer, J. Li, S. Schwartz, S. Soldini, G. Tancredi, A. Campo Bagatin, Y. Zhang. Pre-Encounter Predictions of DART Impact Ejecta Behavior and Observability. Planetary Science Journal, Volume 3, Number 9, September 2022, doi: 10.3847/PSJ/ac7fa1	-		5	
• F. FERRARI, S. Raducan, S. Soldini, M. Jutzi. Ejecta formation, early collisional processes and dynamical evolution after the DART impact on Dimorphos. Planetary Science Journal, Volume 3, Number 7, July 2022, doi: 10.3847/PSJ/ac7cf0	-		2	
• P. Penarroja, M. Pugliatti, F. FERRARI, S. Centuori, F. Topputo, M. Vetrivano, M. Sanjurjo-Rivo. CubeSat Landing Simulations on Small Bodies using Blender. Advances in Space Research (in press), doi: 10.1016/j.asr.2022.07.044	-		-	
• H. Agrusa, F. FERRARI, Y. Zhang, D. Richardson, P. Michel. Dynamical Evolution of the Didymos-Dimorphos Binary Asteroid as Rubble Piles following the DART Impact. Planetary Science Journal, Volume 3, Number 7, July 2022, doi: 10.3847/PSJ/ac76c1	2		3	
• R. Nakano, M. Hirabayashi, H. Agrusa, F. FERRARI, A. Meyer, P. Michel, S. Raducan, P. Sanchez, Y. Zhang. NASA/Double Asteroid Redirection Test (DART): Mutual Orbital Period Change Due to Reshaping in the Near-Earth Binary Asteroid System (65803) Didymos. Planetary Science Journal, Volume 3, Number 7, July 2022, doi: 10.3847/PSJ/ac7566	3		3	
• D. Richardson, H. Agrusa, B. Barbee, W. Bottke, A. Cheng, S. Eggel, F. FERRARI, M. Hirabayashi, O. Karatekin, J. McMahon, S. Schwartz, R. Ballouz, A. Campo Bagatin, E. Dotto, E. Fahnestock, O. Fuentes-Munoz, I. Gkolias, D. Hamilton, S. Jacobson, M. Jutzi, J. Lyzhoft, R. Makadia, A. Meyer, P. Michel, R. Nakano, G. Noiset, S. Raducan, N. Rambaux, A. Rossi, P. Sanchez, D. Scheeres, S. Soldini, A. Stickle, P. Tanga, K. Tsiganis, Y. Zhang. Predictions for the Dynamical States of the Didymos System Before and After the Planned DART Impact. Planetary Science Journal, Volume 3, Number 7, July 2022, doi: 10.3847/PSJ/ac76c9	-		3	
• M. Hirabayashi, F. FERRARI, M. Jutzi, R. Nakano, S. Raducan, P. Sanchez, S. Soldini, Y. Zhang, O. Barnouin, D. Richardson, P. Michel, E. Dotto, A. Rossi, A. Rivkin. Double Asteroid Redirection Test (DART): Structural and dynamic interactions between asteroidal elements of Binary Asteroid (65803) Didymos. Planetary Science Journal, Volume 3, Number 6, June 2022, doi: 10.3847/PSJ/ac6eff	1		6	
• F. FERRARI, P. Tanga. Interior of top-shaped asteroids with cohesionless surface. Icarus, Volume 378, 15 May 2022, 114914, doi: 10.1016/j.icarus.2022.114914	5		8	
• A. Meyer, I. Gkolias, M. Gaitanas, H. Agrusa, D. Scheeres, K. Tsiganis, P. Pravec, L. Benner, F. FERRARI, P. Michel. Libration-induced Orbit Period Variations Following the DART Impact. Planetary Science Journal, December 2021, Vol. 2, No. 6, 242, doi: 10.3847/PSJ/ac3bd1	2		4	
• F. FERRARI, V. Franzese, M. Pugliatti, C. Giordano, F. Topputo. Trajectory options for Hera's Milani CubeSat around (65803) Didymos. Journal of the Astronautical Sciences, December 2021, Volume 68, pp 973–994, doi: 10.1007/s40295-021-00282-z	10		20	
• F. FERRARI, V. Franzese, M. Pugliatti, C. Giordano, F. Topputo. Preliminary mission profile of Hera's Milani CubeSat. Advances in Space Research, March 2021, Volume 67, Issue 6, pp 2010-2029, doi: 10.1016/j.asr.2020.12.034	24		48	

- F. FERRARI, P. Tanga. **The role of fragment shapes in the simulations of asteroids as gravitational aggregates.** *Icarus*, November 2020, Vol. 350, doi: [10.1016/j.icarus.2020.113871](https://doi.org/10.1016/j.icarus.2020.113871) 10 14
- F. FERRARI, M. Lavagna, E. Blazquez. **A parallel-GPU code for asteroid aggregation problems with angular particles.** *Monthly Notices of the Royal Astronomical Society*, February 2020, Volume 492, Issue 1, pp 749-761, doi: [10.1093/mnras/stz3458](https://doi.org/10.1093/mnras/stz3458) 10 13
- A. Capannolo, F. FERRARI, M. Lavagna. **Families of bounded orbits near binary asteroid 65803 Didymos.** *Journal of Guidance, Control, and Dynamics*, January 2019, Volume 42, Number 1, pp 189-198, doi: [10.2514/1.G003437](https://doi.org/10.2514/1.G003437) 18 21
- F. FERRARI, M. Lavagna. **Periodic motion around libration points in the Elliptic Restricted Three-Body Problem.** *Nonlinear Dynamics*, July 2018, Volume 93, Issue 2, pp 453-462, doi: [10.1007/s11071-018-4203-4](https://doi.org/10.1007/s11071-018-4203-4) 26 33
- 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*, June 2018, Volume 147, pp 374-382, doi: [10.1016/j.actaastro.2016.08.011](https://doi.org/10.1016/j.actaastro.2016.08.011) 8 9
- F. FERRARI, M. Lavagna. **Ballistic landing design on binary asteroids: the AIM case study.** *Advances in Space Research*, October 2018, Volume 62, Issue 8, pp 2245-2260, doi: [10.1016/j.asr.2017.11.033](https://doi.org/10.1016/j.asr.2017.11.033) 19 21
- F. FERRARI, A. Tasora, P. Masarati, M. Lavagna. **N-Body Gravitational and Contact Dynamics for Asteroid Aggregation.** *Multibody System Dynamics*, January 2017, Volume 39, Issue 1, pp 3–20, doi: [10.1007/s11044-016-9547-2](https://doi.org/10.1007/s11044-016-9547-2) 16 28
- F. FERRARI, M. Lavagna, K. C. Howell. **Dynamical model of binary asteroid systems through patched three-body problems.** *Celestial Mechanics and Dynamical Astronomy*, August 2016, Vol. 125, Issue 4, pp 413-433, doi: [10.1007/s10569-016-9688-x](https://doi.org/10.1007/s10569-016-9688-x) 19 26

Papers published on conference proceedings (33)

- A. Morselli, G. Di Domenico, E. Andreis, A. Morelli, G. Merisio, V. Franzese, C. Giordano, P. Panicucci, F. FERRARI, F. Topputo. **The EXTREMA Orbital Simulation Hub: a facility for GNC testing of autonomous interplanetary cubesat.** 4S Symposium, Vilamoura, PT, 16-20 May 2022.
- C. Bottiglieri, F. Piccolo, A. Rizza, M. Pugliatti, V. Franzese, C. Giordano, F. FERRARI, F. Topputo. **Mission Analysis and GNC for Hera's Milani CubeSat.** 4S Symposium, Vilamoura, PT, 16-20 May 2022.
- M. Pugliatti, V. Franzese, A. Rizza, F. Piccolo, C. Bottiglieri, C. Giordano, F. FERRARI, F. Topputo. **Design of the on-board image processing of the Milani mission.** 44th AAS Guidance, Navigation and Control (GN&C) Conference (Rocky Mountain), Breckenridge, CO, USA, 4-9 Feb 2022.
- M. Pugliatti, A. Rizza, F. Piccolo, V. Franzese, C. Bottiglieri, C. Giordano, F. FERRARI, F. Topputo. **The Milani mission: overview and architecture of the optical-based GNC system.** AAS/AIAA SciTech, San Diego, CA, USA, 3-7 Jan 2022.
- G. Di Domenico, E. Andreis, A. Morelli, G. Merisio, V. Franzese, C. Giordano, F. FERRARI, F. Topputo. **Toward Self-Driving Interplanetary CubeSats: The ERC-funded project EXTREMA.** 72nd International Astronautical Congress (IAC), Dubai, AE, 25-29 Oct 2021
- C. Bottiglieri, F. Piccolo, A. Rizza, C. Giordano, M. Pugliatti, V. Franzese, F. FERRARI, F. Topputo. **Trajectory design and orbit determination of Hera's Milani CubeSat.** AAS/AIAA Astrodynamics Specialist Conference, Big Sky, MT, US, 8-12 August 2021
- F. FERRARI. **A new environment to simulate the dynamics in the close proximity of rubble-pile asteroids.** *Advances in the Astronautical Sciences*, Volume 168, 2019, pp 2065-2075 [29th AAS/AIAA Space Flight Mechanics Meeting, Maui, HI, US, 13-17 January 2019]
- A. Capannolo, M. Lavagna, F. FERRARI, P. Lunghi. **Optimal Configurations for Nanosatellite Formation Flying in Binary Asteroid Environment.** 26th International Symposium of Space Flight Dynamics, Matsuyama, JP, 3-9 June 2017
- E. Blazquez, F. FERRARI, M. Lavagna. **Numerical simulation of N-body asteroid aggregation with GPU-parallel hierarchical treecode algorithm.** *Advances in the Astronautical Sciences*, Volume 160, 2017, pp 451-469 [27th AAS/AIAA Space Flight Mechanics Meeting, San Antonio, TX, US, 5-9 February 2017, p.451-469].
- B. Burmann, I. Gerth, M. Scheper, M. Lavagna, F. FERRARI, J. Vasconcelos, J. Seabra. **Close-Proximity Operations Concept of the Asteroid Impact Mission (AIM).** 67th International Astronautical Congress (IAC 2016), Guadalajara, MX, 26-30 September 2015, IAC-16-B4.8.5
- A. Capannolo, M. Lavagna, F. FERRARI, P. Lunghi. **Nanosatellite formation flying to enhance science in binary asteroid environment.** 67th International Astronautical Congress (IAC 2016), Guadalajara, MX, 26-30 September 2015, IAC-16-B4.8.9
- F. FERRARI, M. Lavagna, B. Burmann, I. Gerth, M. Scheper, I. Carnelli. **ESA's Asteroid Impact Mission: Mission Analysis and Payload Operations state of the art.** 6th International Conference on Astrodynamics Tools and Techniques, Darmstadt, DE, 14-17 March 2016

- F. FERRARI, M. Lavagna, I. Carnelli. **Coupling High Fidelity Body Modeling with Non-Keplerian Dynamics to Design AIM-MASCOT-2 Landing Trajectories on Didymos Binary Asteroid.** 6th International Conference on Astrodynamics Tools and Techniques, Darmstadt, DE, 14-17 March 2016
- F. FERRARI, M. Lavagna. **Consolidated phase A design of Asteroid Impact Mission: MASCOT-2 landing on binary asteroid Didymos.** 26th AAS/AIAA Space Flight Mechanics Meeting, Napa, CA, US, 14-18 February 2016
- F. FERRARI, M. Lavagna. **Mascot-2 Landing Opportunities Using Three-Body Solutions For Asteroid Impact Mission.** 23rd Conference of the Italian Association of Aeronautics and Astronautics, Torino, IT, 17-19 November 2015
- F. FERRARI, M. Lavagna, I. Gerth, M. Scheper, B. Burmann, I. Carnelli. **The Asteroid Impact Mission: Consolidated Mission Analysis And Scientific Payload Operations At Binary Asteroid Didymos.** 25th International Symposium of Space Flight Dynamics (ISSFD), Munich, DE, 19-23 October 2015
- F. FERRARI, M. Lavagna. **Optimization Of Triangular Formation Flying Configurations Under The Circular And Elliptic Three-Body Problem Dynamics Modelling.** 25th International Symposium of Space Flight Dynamics (ISSFD), Munich, DE, 19-23 October 2015
- A. Colagrossi, F. FERRARI, M. Lavagna. **Coupled Dynamics Analysis around Asteroids by means of Accurate Shape and Perturbations Modeling.** 66th International Astronautical Congress (IAC 2015), Jerusalem, IS, 12-16 October 2015, IAC-15-C1.3.1
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