



Europass Curriculum Vitae

Work experiences

September, 1st 2021 - Present

Teacher at ITN "Carnaro - Marconi - Flacco - Belluzzi", Brindisi, Classe di Concorso A026

July, 31th 2021

Winner of "Concorso STEM 2021" - Classe di concorso A026

October, 8th 2020 - June, 11th 2021

Substitute teacher in Physics (Classe di Concorso A020) at IISS "E. Medi", Galatone

Education

December 2019 - April 2020

Postdoctoral researcher at Università del Salento

- Research project: Applicazione di metodi algebrici nello sviluppo di Maschere Codificate per l'acquisizione e ricostruzione di Immagini nella banda VUV
- Scientific advisor: Prof. L. Martina

June, 24th 2019

PhD in Mathematics, Università del Salento

- Title of the thesis: The retraction-process of the left cycle sets and the Yang-Baxter equation
- Supervisor: Prof. Francesco Catino
- Final Judgment: Cum laude

October, 15th - November, 30th 2018

Visiting PhD student at University of Stuttgart - Faculty 8 - Mathematics and Physics

- Location: Stuttgart
- Supervisor: Prof. Wolfgang Rump

June, 6th-10th 2016

Summer School

- Name: *Advances in Group Theory and Applications 2016 - The School*
- Organisers: F. Catino, M. De Falco, F. de Giovanni and C. Musella
- Location: Vietri sul Mare (Salerno, Italy)

July, 23th 2015

Master's Degree in Mathematics, Università del Salento

- Title of the thesis: Cycle sets quasi lineari
- Supervisor: Prof. Maria Maddalena Miccoli
- Final Judgment: Cum laude

July, 26th 2012

Bachelor's Degree in Mathematics, Università del Salento

- Title of the thesis: Domini quasi euclidei
- Supervisor: Prof. Maria Maddalena Miccoli
- Final Judgment: 108/110

Research interest

The main interest of my research is the study of algebraic structures related to the Yang-Baxter equation, such as braces and q -cycle sets. Moreover, I develop softwares (using C and GAP) useful to work with q -cycle sets and braces of small size.

Publications

Published papers:

- M. Castelli, F. Catino and G. Pinto, *A new family of set-theoretic solutions of the Yang-Baxter equation*, *Comm. Algebra* **46**(4) (2018) 1622-1629.
- M. Castelli, F. Catino and G. Pinto, *Indecomposable involutive set-theoretic solutions of the Yang-Baxter equation*, *J. Pure Appl. Algebra* **223**(10) (2019) 4477-4493.
- M. Castelli, F. Catino, M.M. Miccoli and G. Pinto, *Dynamical extensions of quasi-linear left cycle sets and the Yang-Baxter equation*, *J. Alg. Appl* **18**(11) (2019).
- M. Castelli, F. Catino and G. Pinto, *About a question of Gateva-Ivanova and Cameron on set-theoretic solutions of the Yang-Baxter equation*, *Comm. Algebra* **48**(6) (2020) 2369-2381.
- M. Castelli, G. Pinto and W.Rump, *On indecomposable involutive set-theoretic solutions of prime-power size*, *Comm. Algebra* **48**(5) (2020) 1941-1955.
- M. Castelli, F. Catino and P. Stefanelli, *Left non-degenerate set-theoretic solutions of the Yang-Baxter equation and dynamical extensions of q-cycle sets*, *J. Alg. Appl.* **21**(8) (2021).
- M. Castelli, F. Catino and P. Stefanelli, *Indecomposable involutive set-theoretic solutions of the Yang-Baxter equation and orthogonal dynamical extensions of cycle sets*, *Mediterr. J. Math.* **18**(246) (2021).
- M. Castelli, M. Mazzotta and P. Stefanelli, *Simplicity of indecomposable set-theoretic solutions of the Yang-Baxter equation*, *Forum Math.* **34**(2), 2022.
- M. Castelli, *Classification of Unconnected Involutive Solutions of the Yang-Baxter Equation With Odd Size and a Z-Group Permutation Group*, *Int. Math. Res. Notices* (in press).

Preprints and other works:

- M. Castelli, *Left cancellative left semi-braces of size pq and $2p^2$ and their nilpotency*, submitted (2022).
- M. Castelli, *A characterization of finite simple set-theoretic solutions of the Yang-Baxter equation*, submitted (2022).
- M. Castelli, *The retraction-process of the left cycle sets and the Yang-Baxter equation*, PhD's thesis.
- M. Castelli, *Cycle sets quasi-lineari*, Master's thesis.
- M. Castelli, *Domini quasi euclidei*, Bachelor's thesis.

Talks

June, 26th 2019

On square-free set-theoretic solutions of the Yang-Baxter equation, Advances in Group Theory and Applications 2019, Lecce, 25th-28th June 2019.

March, 12th 2018	<i>Indecomposable left cycle sets</i> , Noncommutative and non-associative structures, braces and applications, Gzira (Malta) 11th-15th March 2018.
September, 6th 2017	<i>A new family of dynamical extensions of left cycle sets</i> , Advances in Group Theory and Applications 2017, Lecce 5th-8th September 2017.
June, 19th 2017	<i>A new family of irretractable set-theoretic solutions of the Yang-Baxter equation</i> , Groups, Rings and the Yang-Baxter equation, Spa (Belgium) 18th-24th September 2017.
May, 24th 2017	<i>A new family of irretractable left cycle sets</i> , Young Researchers Algebra Conference, Napoli, 24th-25th May 2017.
Posters	
June, 10th 2019	<i>Quasi-linear left cycle sets and the Retraction Problem</i> , Groups, Rings and the Yang-Baxter equation, Spa (Belgium), 10th-15th June 2019.
June, 6th 2016	<i>Left cycle sets and Gateva-Ivanova Conjecture</i> , Summer school Advances in Group Theory and Applications 2016 - The School, Vietri Sul Mare (SA), 6th-10th June 2016.
Other teaching experiences	
A.Y. 2019-2020	Tutor for the "IV STAGE OLIMPICO PROVINCIALE" (a stage for the Olympic mathematics contest) at Università del Salento.
A.Y. 2017-2018	Tutor for the Course of Algebra II of the Bachelor Degree in Mathematics at Università del Salento.
A.Y. 2016-2017	Tutor for the Course of Algebra II of the Bachelor Degree in Mathematics at Università del Salento.
Other activities	
Since 2020	Referee for <i>Note di Matematica</i> and <i>Forum Mathematicum</i> . I held the following seminars:
April, 10th 2019	<i>About a question of Gateva-Ivanova and Cameron</i> at University of Salento;
March, 6th 2019	<i>The Retraction Problem for quasi-linear left cycle sets</i> at University of Salento;
November, 13th 2018	<i>Cycle sets: basic results and some developements - Part II</i> at University of Stuttgart;
November, 22th 2017	<i>Estensione dinamica di cycle sets sinistri</i> at University of Salento;
January, 16th 2017	<i>Una nuova famiglia di soluzioni insiemistiche dell'equazione di Yang-Baxter</i> at University of Salento.
Languages	
Italian	Mother tongue
English	Good
Computer Skills	
European Computer Driving Licence (ECDL), MS Windows, MS Office, C, Python, GAP, L ^A T _E X	
Driving Licence	
Category B	

Essendo a conoscenza del testo integrale del bando di concorso, consapevole delle sanzioni penali previste dall'Art. 76 del D.P.R. 28 dicembre 2000 n. 445, per le ipotesi di falsità in atti e dichiarazioni mendaci ivi indicate, dichiara sotto la propria responsabilità, ai sensi degli artt. 46 e 47 dello stesso D.P.R. n. 445/2000, che tutto quanto dichiarato corrisponde a verità.