# Curriculum Vitae of Simona Settepanella

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*Birthdate:* March 30, 1975
*Birthplace:* Teramo (TE), Italy
*Citizenship:* Italian

**Known languages:** Italian, English, French

**Research Interests:** Arrangements of hyperplanes and Toric Arrangements, with particular attention to reflection ones. Application of arrangement theory to social, economics and organizational studies.

**Education:**

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| Degree in Mathematics<br>(4 year "laurea" Degree, Master Equivalent) | at University of Perugia the December 19, 1997,<br>with full marks *cum laude*. |
| Ph.D. in Mathematics | at University of Pisa the November 03, 2003 |
| Ph.D. in Computer Science | at University of Teramo the December 11, 2007 |

**Current Position:**

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| August 2013 - today | Specially Appointed Lecturer at Mathematics Department, Hokkaido University, Japan. |

**Previous Positions:**

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| August 2008 - July 2013 | Research Fellow at Scuola Sant'Anna di Studi Avanzati, Pisa, Italy. |
| December 2007-July 2008 | teacher at High School IPSIA, Pontedera, Pisa. |
| March 2004-December 2007 | Ph.D. student at Communication Sciences Department, University of Teramo, Italy. |
| August 2004-December 2004 | Post doc fellow at M.S.R.I, Berkeley, CA, USA. |
| October 2003-March 2004 | Post doc fellow at Mathematics Department, University of Pisa. |
| April 2003-July 2003 | Pre-doc fellow at Mathematische Institut, Universität Bayreuth, Germany. |
| October 1998 - June 2003 | Ph.D. student at Mathematics Department, University of Pisa. |

**Visiting Positions:**

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|---|---|
| November 2011 | visiting member at Mathematics Department Hokkaido University (Sapporo, Japan). |
| November 2012 | visiting member at Mathematics Department Hokkaido University (Sapporo, Japan). |
| August - September 2013 | visiting member at Scuola Sant'Anna, Pisa (Italy) |
| February - March 2014 | visiting member at Scuola Sant'Anna, Pisa (Italy) |
| September 2014 | visiting member at Scuola Sant'Anna, Pisa (Italy) |
| September 2014 | visiting member at Max Plank Institute, Bonn (Germany) |
| February 2015 | visiting member at Centro De Giorgi, Pisa (Italy) |

**Other:**

January 2013 Italian Qualification as Associate Professor.
December 2013 Affiliation at Institute of Economics of Scuola Superiore Sant'Anna.

**Grant and awards:**

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| July 2012 | 4 years research fellowship of Scuola Sant'Anna di Studi Avanzati, Pisa. |
| June 2008 | 4 years research fellowship of Scuola Sant'Anna di Studi Avanzati, Pisa. |
| March 2004 | 4 year Ph.D grant of Italian Government. |
| August 2004 | post doctoral fellowship of M.S.R.I. , Berkeley, CA, (USA). |
| January 2004 | 1 year grant of Mathematics Department,University of Pisa. |
| October 2003 | 3 month grant of Mathematics Department,University of Pisa. |
| April 2003 | 6 month pre-doctoral EAGER fellowship. |
| June 2000 | young researcher award of Mathematics Department,University of Pisa. |
| November 1998 | 4 years Ph.D. fellowship of Mathematics Department,University of Pisa. |
| January 1998 | award for particularly worthy graduate student. |

**Refereeing Activity :**

Referee for Advances in Applied Mathematics, Journal of Evolutionary Economics, CRM Series - Pubblicazioni del Centro di ricerca matematica Ennio De Giorgi, Journal of Algebraic Combinatorics (JACO).

**Editor Activity :**

Guest editor for Evolutionary and Institutional Economics Review as editor of the Volume 12 (2015). Peer reviewed Springer journal.

**Partecipation in Projects**

- Partecipant of the PRIN National Project *Geometric property of real and complex manifolds* in the years 2000-2002-2005-2007. The PRIN has been financed by Italian government and lasted for 2 years.
- Sakura Project jointly with French group in Pau as participant in the project in 2014.
- Summer Institute program as participant in the project in 2014 and 2015.

# Publications

**All published paper are published in peer reviewed journals.**

## Published research papers

1. *Decidability in complex social choice* (with G. Amendola, L. Marengo, D.Pirino and A. Takemura), accepted for publication in Evolutionary and Institutional Economics Review. (referred)

2. *On the Configuration Spaces of Grassmannian Manifolds* (with S.Manfredini), Ann. Fac. Sci. Toulouse , **23** (2014), issue 2, 353-359. (referred)

3. *Braid groups in complex spaces* (with S.Manfredini and S. Parveen), Bollettino dell'Unione Matematica Italiana **7** (2014), issue 2, 157-168. (referred)

4. *Braid groups in complex Grassmannians* (with S.Manfredini), Topology Appl. **176** (2014), 51-56 . (referred)

5. *Social Choice among Complex Objects* (with L. Marengo), Ann. Scuola Norm. Sup. Pisa Cl. Sci. **13** (2014), issue 5, 1-26. (referred)

6. *Vanishing results for the cohomology of complex toric hyperplane complements* (with M. Davis), Publicacions Matemàtiques **57** (2013), issue 2, 379-392. (referred)

7. *Modularity and Optimality in Social Choice* (with G.Amendola), J. Math. Sociol. **36** (2012), issue 1, pp. 44-77. (referred)

8. *The homotopy type of toric arrangements* (with L. Moci), J. Pure Applied Algebra **215** (2011), pp. 1980-1989. (referred)

9. *Blocking Sets in the complement of hyperplane arrangements in projective space*, Journal of Discrete Math. Sci. & Criptography **12** (2009), 101-107. (referred)

10. *Cohomology of Pure Braid Groups of exceptional cases*, Topology Appl. **156** (2009), 1008-1012. (referred)

11. *Combinatorial polar ordering and recursively orderable arrangements* (with E. Delucchi), Adv. in Appl. Math. **44** (2010), issue 2, 124-144. (referred)

12. *On the Cohomology with local coefficients of Pure Braid Groups*, Analele St. Univ. Ovidius Constanta, Seria Matematica **17**(1) (2009), 211-230. (referred)

13. *Combinatorial Morse theory and minimality of hyperplane arrangements* (with M. Salvetti), Geometry and Topology **11** (2007) 1733-1766. (referred)

14. *A stability-like theorem for cohomology of Pure Braid Groups of the series A, B and D*, Topology Appl. **139** (2004), no.1-3, 37-47. (referred)

## Papers under second revision

15. *Production theory: accounting for firm heterogeneity and technical change* (with G. Dosi, M. Grazzi and L. Marengo), close consideration for publication in Journal of Industrial Economics after a revision that addresses referees comments.

## Preprints

16. *The **nbc** minimal complex of supersolvable arrangements* (with M. Torielli) (submitted)

17. *Heterogeneity on production theory: a discrete geometric approach* (with G. Dosi, M. Grazzi, L. Marengo and F. Ponchio) (submitted)

18. *Social Choice among Complex Objects:Mathematical Tools*, LEM working papers 2010/1

## Work in progress

*On the topology of space of generic arrangements* (with A. Libgober)

*Combinatorics of the Milnor Fiber for affine line arrangements* (with P. Baillet)

## Thesis

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|---|---|---|
| Ph.D Thesis | *Blocking Sets in the complement of hyperplane arrangements in projective space* | supervisor Prof. F. Eugeni (2007) |
| Ph.D Thesis | *Cohomologies of Generalized Pure Braid Groups and Milnor fibre of reflection arrangements* | supervisor Prof. M. Salvetti (2003) |
| Degree Thesis | *On approximation of analytic functions whit Nash functions* | supervisor Proff. A. Tancredi e G. Nardelli (1997). |

# Conferences

Recent seminars and invited talks at conferences and workshop

| *date* | *Conference* | *Title of the talk* |
|---|---|---|
| January 2011, | CIMPA Conference: Braids in Algebra, Geometry and Topology, Hanoi (Vietnam) | The integer cohomology of toric Weyl arrangements. |
| May 2011, | Examples of Geometries, Columbus (Ohio, U.S.A) | Homotopy type of toric arrangements. |
| August 2011, | Hyperplane arrangements and applications, Vancouver (Canada). | Arrangements and Social Choice a geometric model. |
| November 2011 | 4 lectures minicourse, Hokkaido University (Japan) | Arrangements and social choice. |
| March 2012 | Hyperplane Arrangements and Related Topics, Nice (France) | Cohomology of generalized pure braid groups and Milnor fibres. |
| May 2012 | Arrangements and Configuration Spaces, Bremen (Germany) | Vanishing results for the cohomology of complex toric hyperplane complements. |
| June 2012 | Arrangements in Pyrnes, Pau (France) | Vanishing results for the cohomology of complex toric hyperplane complements |
| November 2012 | seminar series, Sapporo (Japan) | Arrangements and menagement. |
| November 2013 | Hyperplane Arrangements and Characteristic classes, Kyoto (Japan) | Braid groups in complex spaces and grassmannians. |
| January 2014 | Seminar at Berkeley University (USA) | Geometric methods in Economics |
| January 2014 | Women in algebraic Topology, MSRI (Berkeley, USA) | Braid groups in complex spaces and grassmannians. |
| February 2014 | Seminar at Bremen University (Germany) | Zonotopes and Production Theory |
| December 2014 | Seminar at Chuo University (Tokyo) | Geometric methods in Economics |
| February 2015 | Algebraic topology, geometric and combinatorial group theory, Centro De Giorgi (Pisa, Italy) | The **nbc** minimal complex of supersolvable arrangements |
| March 2015 | Seminar at Mathematics Department, Verona University (Italy) | Zonotopes and Production Theory |
| March 2015 | Arrangements of plane curves and related problems (Tokyo,Japan) | The **nbc** minimal complex of supersolvable arrangements |
| May 2015 | Towards a New Paradim for Self-Organaization, RIMS Symposium (Kyoto, Japan) | Arrangements of hyperplanes and decision theory |

## Organized Workshops and Schools

1. August 2014 at Hokkaido University Workshop on *Recent Developments on Geometric and Algebraic methods in Economics* (co-organizers H. Terao, M. Nishibe and M. Yoshinaga)

2. December 2014 at Bremen University Workshop on *Arrangement of Hyperplanes* (co-organizer E. Feitchner)

3. Winter School in Hokkaido University (co-organizer with H. Kubo)

4. August 2015 in Korea, minisymposium inside SIAM Conference (co-organizers E. Feitchner and Y. Aruka)

5. Summer School in Hokkaido University (co-organizer with H. Kubo, M. Yoshinaga)

## Teaching experience

As Assistant in Pisa University:

| *Year* | *Course* | *Degree Course* |
|---|---|---|
| 1999/00 | Matematica Discreta | Computer Science |
| 2000/01/03/04 | Calculus | Biology |
| 2001/02/05/06 | Algebra | Computer Science |

As Teacher at Scuola Sant'Anna di Studi Avanzati:

| *Year* | *Course* | *Degree Course* |
|---|---|---|
| 2008/09/10/11/12/13 | Linear Algebra (in English) | International Ph.D. in Economics |
| 2008/09/10/11/12/13/14 | Linear Algebra | Internal course for Allievi |

As a Specially Appointed Lecturer at Hokkaido University:

| *Year* | *Course* | *Degree Course* |
|---|---|---|
| 2014/15 | Linear Algebra I and II | First year students (general) |
| 2014/15 | Calculus I and II | First year students (general) |
| 2014/15 | Algebraic Topology book seminars | second and third year students (mathematics) |

### Supervisor Activity

She is currently supervising two 4th year students. They both attended the book seminars on *An Introduction to Algebraic Topology* (by Massey) during second semester 2014 and intend to enter Master studies.