

## SAMUELE ANTONINI

### CURRICULUM

#### CURRENT ACADEMIC POSITION

Associate Professor in Mathematics Education (MAT/04), Department of Mathematics, University of Pavia.

#### EDUCATION, TITLES AND POSITIONS

1996 Degree in Mathematics at University of Pisa (Italy) (grade: 110/110 cum laude)

1997 Post-graduate studies at "Istituto Nazionale di Alta Matematica" of Rome, Italy.

2003 PHD in Mathematics from University of Pisa (PhD dissertation in mathematics education)

(2001-2005: secondary school Mathematics teacher)

2005-2015 Assistant Professor in mathematics education with a permanent position (Dep. of Mathematics, University of Pavia)

2014 Abilitazione Scientifica Nazionale a Professore di II Fascia settore concorsuale 01/A1 Logica matematica e matematiche complementari (national scientific habilitation for associate professor),

2015-today Associate Professor in mathematics education (Dep. of Math., Univ. of Pavia)

#### INTERNATIONAL MEMBERSHIPS, APPOINTMENTS, COORDINATION

2007 Member of the IPC for the International Meeting *The Role of Mathematical Examples in Argumentation & Proof, and in Conceptualization & Definition*, Certosa di Pontignano, Siena, Italy, 13-16 October, 2007.

2009-2011 Guest-Editor (with N. Presmeg, M.A. Mariotti and O. Zaslavsky) for Zentralblatt für Didaktik der Mathematik - The International Journal on Mathematics Education, vol. 43, number 2, 2011. Topic: *Examples in mathematical thinking and learning from an educational perspective*.

2009-2013 Member of the *International Committee of the International Group for Psychology of Mathematics Education* (PME).

2012-2013 Co-leader of the working group *Argumentation and proof* for CERME 8, Antalya, Turkey, 2013.

2014-2015 Leader of the Thematic Working Group *Argumentation and proof*, CERME 9, Prague, Czech Republic, 2015.

2016-2017 Co-leader of the Thematic Working Group *Argumentation and proof*, CERME 10, Dublin, Ireland, 2017.

Reviewer for the international journals:

- *Educational Studies in Mathematics*

- *Zentralblatt für Didaktik der Mathematik-The Int. Journal on Mathematics Education*
- *Mathematical Thinking and Learning*
- *Journal of Mathematics Teacher Education*
- *International Journal of Science and Mathematics Education*

## **EDITORIAL BOARD**

2017-today Member of the Editorial Board of *Bollettino dei Docenti di Matematica*, Canton Ticino, Switzerland.

2017-today Member of the Editorial Board of *La Matematica e la sua Didattica*.

## **NATIONAL MEMBERSHIPS, APPOINTMENTS, COORDINATION**

2006-2011 National coordinator of Ph.D. students in the field of mathematics education

2011-2012 Member of Committee for writing the Constitution of the *Associazione Italiana di Ricerca in Didattica della Matematica (AIRDM)*.

2012 Founding member of AIRDM.

2012-2016 Secretary and member of the Executive Board of AIRDM.

2016-today Member of scientific and organizing committee for the organization of National Seminar for Research in Mathematics Education "G. Prodi".

## **SELECTION COMMITTEES FOR PHD AND ACADEMIC POSITIONS**

2010 Member of Selection Committee for the admission at the Ph.D. Program in History and Didactics of Mathematics, Physics and Chemistry, University of Palermo, Italy.

2016 Member of Selection Committee for a position of Assistant Professor in Mathematics Education, Department of Mathematics, Politecnico of Milan, Italy.

## **ORGANIZATION**

2007-2011 Organization of seminars and meeting for young researchers in mathematics education:

Rimini, Italy, 24-25 January, 2007.

Palermo, Italy, 30 August-1 September, 2007.

Rimini, Italy, 30-31 January, 2008.

Genoa, Italy, 4-6 September 2008.

Rimini, Italy, 18-19 February, 2009.

Naples, Italy, 3-5 September 2009.

Rimini, Italy, 3-4 February, 2010.

Turin, Italy, 9-11 September 2010.

Rimini, Italy, 26-27 January, 2011.

2014 Organization of meeting on courses of mathematics education at university level, Pisa, 26 May 2014 and 26 September 2014.

- 2016 Member of Scientific and Organizing Committee of the Second Ph.D. Summer School in Mathematics Education, Fisciano, Italy, 27-29 June, 2016.
- 2016 Member of Local Organizing Committee of XXXIII Convegno UMI-CIIM, Pavia, Italy, 7-9 October 2016.
- 2017 Member of Scientific Organizing Committee of XXXIV Seminario Nazionale di Ricerca in Didattica della Matematica "G. Prodi", Rimini, Italy, 23-25 February 2017.

### LOCAL RESPONSIBILITIES

- 2006-2009 Member of the Committee for didactic evaluation of School for Pre-service Teachers of University of Pavia.
- 2006-2014 Member of the Technical and Scientific Committee of the *Centro Interdipartimentale di ricerca per la didattica della storia* of University of Pavia.
- 2010-2014 Member of the Technical and Scientific Committee of the *Centro Interdipartimentale di ricerca per la Didattica e la Storia della Scienza* of University of Pavia.
- 2013-today Coordinator of the pre-service and in-service mathematics teachers education programs (TFA-PAS) at the University of Pavia

### ADMISSION COMMITTEES FOR TEACHERS TRAINING

Member of Admission Committee for pre-service teachers programs, a.y. 2005/2006, 2006/2007, 2007/2008, 2012/2013 (chair), 2013/2014 (chair).

### INVITED CONFERENCES

- Impossible figures and contradictions in a DGE between evidence and mathematical theory.* Interdisciplinary Symposium "Mathematical evidence and argument", Bremen, Germany, 17 March 2017.
- Educare all'argomentazione*, XXXIII Convegno UMI-CIIM, Pavia, Italy, 8 October 2016.
- Congetturare e argomentare tra esempi e contro-esempi.* Convegno: Educare alla razionalità, Sestri Levante, Italy, 9 June 2016.
- Produrre definizioni, congetture e argomentazioni: dal piano alla sfera, dalla sfera al piano.* Seconda scuola estiva per insegnanti UMI CIIM-AIRDM, Marina di Pietrasanta, 2 September 2015.
- Congetturare e argomentare in ambienti di geometria dinamica*, (with Anna Baccaglioni-Frank) XXXII Seminario Nazionale di Didattica della Matematica, Rimini, Italy, 22-24 January 2015.
- Plenary: *Argomentare e dimostrare nel paese degli esempi e dei controesempi: esperienze nella scuola secondaria di secondo grado.* Convegno UMI-CIIM, Livorno, Italy, 17 October, 2014.
- Progettazione ed esperienze di buona didattica della matematica con artefatti intelligenti.* XXXI CONGRESSO NAZIONALE CNIS (Associazione per il Coordinamento Nazionale degli Insegnanti Specializzati e la ricerca sulle situazioni di handicap) *Quando educare è più difficile: nuovi saperi per alunni dei nuovi tempi*, Rome, Italy, 11, 12 April 2014
- Regular Lecture: *Generating examples: an intriguing problem solving activity*, 11th International Congress on Mathematical Education (ICME 11), Monterrey, Mexico, 13 July, 2008.
- Students' use of reductio ad absurdum.* Invited talk as early career researcher at Topic Study Group 26, 12 July 2008, ICME, Monterrey, Mexico.

*Teoremi, dimostrazioni per assurdo e contraddizioni: la ricostruzione di un nuovo senso da parte degli studenti*, Convegno: Logica matematica, costruzione dei concetti e processi socio-cognitivi, 1 July 2008, Salerno, Italy.

*Examples generation as problem solving*. International Meeting *The Role of Mathematical Examples in Argumentation & Proof, and in Conceptualization & Definition*, Certosa di Pontignano, Siena, Italy, 13-16 October, 2007.

*Teoria e oggetti matematici nel processo argomentativo* (Conferenza CIIM), XVIII Congresso dell'Unione Matematica Italiana, Bari, Italy, 24-29 September, 2007.

Invited speaker in Departments of Mathematics and of Education in different Italian universities: Turin, Florence, Genoa, Reggio Emilia, Palermo, Camerino, Bologna, Milan Politecnico, Cagliari.

### **TALKS AT INTERNATIONAL CONFERENCES**

2001: CERME 2, Mariánské Lázně, Czech Republic;

2001: 25th PME Conference, Utrecht, The Netherlands;

2003: 27th PME Conference, Honolulu, U.S.A.;

2004: 28th PME Conference, Bergen, Norway;

2006: 30th PME Conference, Prague, Czech Republic;

2007: CERME 5, Larnaca, Cyprus;

2009: CERME 6, Lyon, France;

2010: 34th PME Conference, Belo Horizonte, Brazil;

2011: 35th PME Conference, Ankara, Turkey;

2014: Summer Seminars of the European Dyslexia Association, Repubblica di San Marino;

2014: 9th International Conference on Conceptual Change, Bologna, Italy.

2016: 40th PME Conference, Szeged, Hungary.

### **AWARDS AND HONORS**

2010 *Giorgio Tomaso Bagni Award* (awarded to young researchers for research papers in mathematics education).

### **ACTIVITY IN PH.D.**

2010-2013 Member of the PhD Faculty for the Ph.D. Program in History and Didactics of Mathematics, Physics and Chemistry, University of Palermo, Italy.

2010 Member of the Dissertation Committee, Ph.D. in Mathematics Education, University of New Hampshire, U.S.A.

Since 2015 Advisor of one doctoral dissertation, Ph.D. in Mathematics, Department of Mathematics and Computer Science, University of Florence.

### **TEACHING**

Teacher for courses in epistemology and mathematics education in mathematics undergraduate program and in pre-service mathematics teachers program.

- 1998-2002 Teaching assistant for undergraduate scientific courses (University of Pisa)
- 2004/2005 Teacher for courses in epistemology and mathematics education for pre-service secondary teachers (University of Pisa).
- 2005/2006 *Fondamenti della Matematica, modulo B* (First Level Degree in Mathematics, 30 hours)  
*Epistemologia della Matematica* (Pre-service Secondary Teachers Program, 12 hours)  
*Laboratorio di Epistemologia della Matematica* (Pre-service Secondary Teachers Program, 12 hours)
- 2006/2007 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)  
*Epistemologia della Matematica* (Pre-service Secondary Teachers Program, 12 hours)  
*Laboratorio di Epistemologia della Matematica* (Pre-service Secondary Teachers Program, 12 hours)
- 2007/2008 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)  
*Epistemologia della Matematica* (Pre-service Secondary Teachers Program, 10 hours)  
*Laboratorio di Epistemologia ed Aritmetica* (Pre-service Secondary Teachers Program, 18 hours)
- 2008/2009 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)  
*Complementi di didattica della matematica II* (Pre-service Secondary Teachers Program, 20 hours)
- 2009/2010 *Fondamenti della Matematica* (First Level Degree in Mathematics, 60 hours)  
*Didattica della Matematica II* (30 hours). Teacher for the course for pre-service primary teachers at University of Turin
- 2011/2012 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)
- 2012/2013 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)  
*Laboratorio pedagogico-didattico, modulo 1* (Pre-service Secondary Teachers Program, 6 hours)  
*Didattica ed epistemologia della matematica, modulo 1* (Pre-service Secondary Teachers Program, 18 hours)
- 2013/2014 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)  
*Epistemologia e didattica della matematica, modulo 2* (PAS, classe A Pre-service Secondary Teachers Program 049, 18 hours)  
*Didattica del Laboratorio di matematica, modulo 3* (Pre-service Secondary Teachers Program, 6 hours)  
*Didattica ed epistemologia dell'aritmetica e dell'algebra, modulo 2* (Pre-service Secondary Teachers Program, 6 hours)
- 2014/2015 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)  
*Didattica ed epistemologia dell'aritmetica e dell'algebra, modulo 2* (Pre-service Secondary Teachers Program, 6 hours)

*Didattica e laboratorio della matematica, modulo 2* (Pre-service Secondary Teachers Program, 12 hours)

*Didattica ed epistemologia dell'aritmetica e dell'algebra, modulo 1* (Pre-service Secondary Teachers Program, 12 hours)

*Didattica ed epistemologia della matematica, modulo 2* (Pre-service Secondary Teachers Program, 12 hours)

2015/2016 *Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)

*Matematiche Complementari* (Second Level Degree in Mathematics, 48 hours)

2016/2017 *Didattica della Matematica* (Second Level Degree in Mathematics, 72 hours)

*Fondamenti della Matematica* (First Level Degree in Mathematics, 56 hours)

### **Theses**

Advisor of about thirty these for first and second level mathematics degree on Mathematics Education, Foundation of Mathematics and Logic. Advisor of several pre-service teachers program theses on Mathematics Education.

### **Pre-academic teaching**

2002-2005 Secondary school teachers at liceo classico "Carducci", Viareggio, Italy.

### **IN-SERVICE TEACHER EDUCATION**

Since 2005, coordination and participation of different activities, seminars, conferences, laboratories for in-service teachers.

2005-today coordinator of training activities and workshops for in-service teachers involved in "Piano Lauree Scientifiche"

2006/2007 scientific supervisor of research activity of a primary teacher, supported by a grant from 'Direzione scolastica Regionale per la Lombardia'.

### **PARTICIPATION TO NATIONAL RESEARCH PROJECTS**

Participation to various research projects in mathematics education (among which PRIN 2003, 2005, 2007 coordinated by Bartolini Bussi).

### **SCIENTIFIC ACTIVITY**

Research field: Mathematics education.

In particular: argumentation and proof; exemplification, artefacts and instruments, dynamic geometry, mathematics learning disabilities.