

## Curriculum Vitae

### General

Name: Previtali Andrea  
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Current Position: Associate Professor  
Date of birth: December, 28 1965  
Place of birth: Vimercate (Milan), Italy  
Nationality: Italian

### Education

1984: High School Diploma in Languages (English, French and German) **60/60**  
1990: Degree in Mathematics at the University of Milan **110/110 cum laude**  
1995: Ph.D. in Mathematics at the University of Pisa **120/120**

### Employment

1993: High School Teacher in Mathematics **100/100**  
2000: Junior Researcher in Mathematics at the University of Insubria-Como  
2003: Senior Researcher in Mathematics at the University of Insubria-Como  
2006: Associate Professor in Mathematics at the University of Insubria-Como  
2012: Associate Professor in Mathematics at the University of Milano-Bicocca

### Fellowships

1991-1995: four-year Ph.D. fellowship at the University of Pisa  
1995: one-year fellowship at the Institute for High Mathematics in Rome  
1996: six-month fellowship for abroad perfectioning from the University of Padua  
1996: one-year Fulbright fellowship  
1996: one-year fellowship from the National Research Council  
1997-1998: two-year post-doctoral fellowship from the University of Pisa

1999: one-year fellowship from the National Research Council for abroad Research  
2000-2001: two-year Research grants issued by the University of Milano-Bicocca

### **Visiting Positions**

1993-1994: Ph. D. student at the University of Mainz, Germany, supervisor Prof. Dr. B. Huppert  
1995: Indam fellow at the University of Rome, Italy, supervisor Prof. C. Scoppola  
1996-1997: Postdoctoral fellow at the University of Wisconsin-Madison, USA, supervisor Prof. M. I. Isaacs  
1999, 2002: two-month research visitor at the University college in Dublin, Ireland, collaborator Prof. R. Gow  
2002, 2003: two-month research visitor at the Institute for experimental Mathematics in Essen, Germany, collaborator Prof. G. O. Michler  
2004, 2005: two-month research visitor at the University of Cornell, collaborator Prof. G. O. Michler  
2007-2008: 6-month visiting Professor at the University of Sydney, collaborator Prof. J. Cannon

### **Communications**

1994: "Sylow  $p$ -subgroups of finite linear groups and their character degrees" at the conference "Linear Groups" organized by CIRM in Levico (TN)  
1995: "Character degrees of some  $p$ -groups" Tagung "Gruppen und topologischen Gruppen" in Friburgo  
1997: "Theorems like Hall's" at the American Mathematical Society conference in Detroit  
1997: "Theorems like Hall's" Ph. D. Centennial at the University of Wisconsin-Madison  
1997: "Operator groups fixing chain of subgroups" at the Università di Firenze  
1997: "Operator groups fixing chain of subgroups" at the University de L'Aquila  
1998: "Maps behaving like exponentials" at the conference of Group Theory in Florence  
1998: "Maps behaving like exponentials" at the University of L'Aquila  
2000: "Unitriangular action on sesquilinear and quadratic forms" at the conference of Group Theory in Milan  
2000: "Minimally irreducible groups" al conference of Group Theory in Lecce

- 2001: "Irreducible modules of modular exceptional simple Lie algebras" at the University Cattolica in Brescia
- 2001: "Graph methods in Lie theory" at the University of Milano-Bicocca
- 2001: "Almost-simple irreducible groups of Lie type" at the University of L'Aquila
- 2001: "Minimally irreducible semisimple groups" at the Workshop in group theory dell'University of Oxford
- 2002: "Carter subgroups" at the University of L'Aquila
- 2002: "Galois automorphisms in classical groups" at the University College Dublin
- 2002: "Conjugacy problem for Carter subgroups" at the University of Saint Petersburg
- 2002: "Existence and Uniqueness of some sporadic groups" at the conference of Group Theory in Ischia
- 2003: "On the construction of Higman-Sims simple group" at the Institut fuer experimentelle Mathematik di Essen
- 2003: "Classical groups and their Carter subgroups" at the Summer school in Combinatorics and Representation theory at the University of Lisbon
- 2003: "Esistenza ed Unicit  del gruppo di O'Nan" XVII conference of the Unione Matematica Italiana
- 2003: "Gruppi generati da trasvezioni" at the conference of Group Theory in Udine
- 2004: "On the Existence and uniqueness of Thompson sporadic simple group" at the conference in honor of M. Herzog, Ischia
- 2004: "Il metodo RSA" Licei Fermi, Galilei, Giovio, Badoni e Terragni
- 2004: "Nuovi metodi per stabilire quando un intero primo" Licei Fermi, Galilei, Giovio, Badoni e Terragni
- 2004: "Computing Character Tables: Old and new methods" al convegno di Teoria dei gruppi di Napoli
- 2005: "Classical Groups, Character Degrees, Unitriangular Actions, and Quadratic Forms" al convegno "p-gruppi: vecchi problemi, nuove tecniche" at the Domus galileiana in Pisa
- 2005: "Seven questions and one lie" Licei Fermi, Galilei, Giovio, Grassi, Terragni e Facchinetti
- 2005: "Matematica Sperimentale: tra utile e dilettevole" Insubria Open Days
- 2006: "Magma, gruppi di permutazione e curve ellittiche", Universita' di Milano
- 2006: "Magma, basi di Groebner e curve ellittiche", Universita' di Milano-Bicocca

- 2006: "Irreducible characters of monomial representations", Technische Universität zu Berlin
- 2006: "Cyclotomic polynomials and generation of finite fields", Palazzo della Regione Abruzzo
- 2006: "Irreducible characters of monomial representations", University of Padua
- 2007: "Constructing representations with a given character", School of Mathematics and Statistics, University of Sydney

### Conferences

- 1989 & 1990: Summer courses in Perugia in Algebra, Numerical Analysis and Algebraic Geometry
- 1991: "Arithmetic Algebraic Geometry" organized by CIME in Povo (TN)
- 1991: "Modular Representation Theory" organized by CIRM in Povo (TN)
- 1992: "Arithmetic Algebraic Geometry" organized by ICTP in Trieste
- 1993: "Group Theory" organizzato dal CIRM in Povo (TN)
- 1995: "Linear Groups" organized by CIRM in Levico (TN)
- 1995: "Gruppen und topologischen Gruppen" in Friburgo
- 1996: Magma conference in Milwaukee
- 1997: Conference of the American Mathematical Society in Detroit
- 1997: Ph. D. Centennial of the University of Wisconsin-Madison
- 1998: Group Theory Conference in Florence
- 1998: Summer course in Cortona in Linear Groups
- 2000: Group Theory Conference in Milano-Bicocca
- 2000: Group Theory Conference in Lecce
- 2001: Conference on "Algebraic groups", Bielefeld
- 2001: Norddeutsches Kolloquium
- 2001: Summer courses at the Workshop in group theory, Oxford
- 2001: Group Theory Conference in Brescia
- 2002: Corso estivo di Cortona sulla Classificazione dei gruppi semplici
- 2002: Group Theory Conference in Ischia
- 2003: Scuola estiva in Combinatoria e teoria della rappresentazione a Lisbona
- 2003: XVII conference dell'Unione Matematica Italiana
- 2003: Conference in honor of Walter Feit at Yale University

- 2003: Group Theory Conference in Udine
- 2004: Group Theory Conference in honor of M. Herzog in Ischia
- 2004: Group Theory Conference in Naples
- 2005: Conference "p-groups: old problems new techniques" at the Domus galileiana in Pisa
- 2006: Magma conference 2006 Technische Universitaet zu Berlin
- 2006: Security in public administration, Palazzo della Regione Abruzzo
- 2006: Group Theory Conference at the University of Padua

### **Teaching**

- 1989,1990,1994: I taught in high school as a permanent teacher
- 1998-2004: I have given various classes in Linear Algebra, Discrete Mathematics, Geometry and Calculus at the Polytechnical School in Como and Milan and at the University of Milan-Bicocca
- 2000-...: I have held 3 courses a year at the University of Insubria-Como on different subjects among which Basic Algebra, Discrete Mathematics, Group Theory, Representation Theory, Advanced Combinatorics, Coding Theory, Galois Theory and Number Theory

### **Research activity**

- 1990: Degree Thesis in Mathematics "Matrix representations of algebraic integers" supervisor Prof. M. Sce
- 1990: PhD fellowship at University of Pisa
- 1994: PhD thesis about the solution of a conjecture by R. Thompson concerning the character degrees of maximal unipotent subgroups of finite groups of Lie type; supervisor Prof. Dr. B. Huppert by the University of Mainz-Germany
- 1995: Analysis of  $p$ -groups with small breadth; joint work with Prof. C. Scoppola (Università La Sapienza-Rome), Prof. A. Mann (University of Jerusalem); supported by the Institute for High Mathematics Indam
- 1996: Solubility or nilpotency of some automorphism groups; joint with Prof. M. I. Isaacs (University of Wisconsin-Madison); financed by perfectioning, post-doctoral and Fulbright fellowships
- 1997: Determination of the conjugacy classes of maximal unipotent subgroups of finite groups of Lie type
- 1997: Determination of the automorphism groups of graphs extending Petersen graph; joint with Dr. W. Pacco (Milan Polytechnical School) e Dr. M. Lovrečič (University of Liubljana)

- 1998: Existence of partitions for prime-power order groups, joint with Prof. N. Gavioli from Università de L'Aquila
- 1999: Analysis of the characters of maximal unipotent subgroups of finite symplectic groups in characteristic 2 and unitriangular actions on quadratic and sesquilinear forms; joint with Prof. R. Gow (University College of Dublin)
- 2000: Determination of minimally irreducible groups; joint with Proff. L. Di Martino and F. Dalla Volta (University of Milano-Bicocca)
- 2001: Conjugacy of Carter subgroups of finite groups; joint with Prof. M. C. Tamburini (Catholic University of Brescia) and Dr. E. P. Vdovin (University of Novosibirsk)
- 2002: Generation of classical groups by trasvections; joint with Prof. L. Di Martino (University of Milan-Bicocca) and Dr. R. Radina (University of Milan)
- 2002: Modular reduction of Steinberg representation; joint with Prof. R. Gow (University College of Dublin)
- 2002: Existence and uniqueness of sporadic groups; joint with Prof. Dr. G. O. Michler (Institut für experimentelle Mathematik-Essen)
- 2003: Costruction of the sporadic groups of Higman-Sims, O'Nan and Thompson; joint with Prof. Dr. G. O. Michler (Cornell University NY)
- 2004: Special linear groups generated by transvections; joint with Prof. L. Di Martino (University of Milan-Bicocca) and Dr. R. Radina (University of Milan)
- 2004: Costruction of the character table of permutation groups in high degree using Lenstra-Lenstra-Lovasz (LLL) and Michler-Weller algorithms; joint with Prof. Dr. G. O. Michler (Cornell University NY)
- 2004: Automorphisms of generalized superPetersen graphs and projective geometries; joint with Dr. W. Pacco (Milan Polytechnical School) e Dr. M. Lovrečić (University of Liublijana);
- 2005: Recursive relations for the orbit size of sesquilinear and quadratic forms under unitriangular actions and the character degrees of maximal unipotent subgroups of finite groups of Lie type;
- 2006: Determination of irreducible constituents of monomial representations of finite groups in coprime characteristic
- 2007: Minimizing the field of realization for irreducible representations in characteristic zero: cyclic and non-cyclic case joint with Dr. C. Fieker (University of Sydney)
- 2007: Construction of representations with assigned character under Magma; joint with Prof. J. Cannon (University of Sydney)

- 2007: Determination of the conjugacy class sizes of maximal unipotent subgroups of finite groups of Lie type in good characteristic; joint with Prof. T. Weigel (University of Milan-Bicocca)
- 2008: Determination of the irreducible character degrees of maximal unipotent subgroups of finite groups of Lie type in good characteristic; joint with Prof. T. Weigel (University of Milan-Bicocca)
- 2008: Equivalence classes of Goppa codes under monomial actions; joint with Prof. F. Dalla Volta (University of Milan-Bicocca) and Dott.ssa M.Giorgetti (University of Insubria-Como)

#### **Skills**

Good knowledge and experience with symbolic manipulation programs (C++, Java, Maple 12, Mathematica 6, Magma 2.14 and Gap 4.4.10).