

# Alberto Vecchiato

## Curriculum vitae

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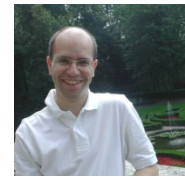
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## Professional experience

2007

**CTER - IV liv.**, *INAF - Astrophysical Observatory of Torino*, Pino Torinese, Italy.  
This is the official denomination. For all practical meanings my work is that of a researcher.

2006

**Research associate**, *INAF - Astronomical Observatory of Torino*, Pino Torinese, Italy.

2007

2004

**Post-doc fellowship**, *Astronomical Observatory of Torino*, Pino Torinese, Italy.

2005

2003

**Research associate**, *Astronomical Observatory of Torino*, Pino Torinese, Italy.

2001

**Post-doc fellowship**, *Physics department, University of Padova*, Padova, Italy.

2003

2002

**Research fellowship**, *CISAS (Centro Interuniversitario di Studi e Attività Spaziali) "G. Colombo" of the University of Padova*, Padova, Italy.

2001

**Research associate**, *CISAS (Centro Interuniversitario di Studi e Attività Spaziali) "G. Colombo" of the University of Padova*, Padova, Italy.

## Teaching experience

2010

**Lecturer**, *INAF Ph.D. School of Astrophysics "F. Lucchin"*, Asiago (VI), Italy.  
"Putting Einstein to test. Astrometric Experiments from Space, Fundamental Physics and Local Cosmology."

2001

**Teaching assistant**, *University of Padova*, Padova, Italy.

2003

Freshmen's Physics courses for engineering students.

1998

**Assistant professor**, *EIOM (European Institute of Osteopathic Medicine, Cadoneghe (PD), Italy.*

1999

Freshmen's Physics course.

1998

**Assistant professor**, *EIOM (European Institute of Osteopathic Medicine, Cadoneghe (PD), Italy.*

1999

Freshmen's Chemistry course.

## Theses

- 2013 **PhD in Physics**, *Observatory of Paris/University of Torino*, Stefano Bertone.  
"From Time Transfer Functions to a model for relativistic astrometry in the Gaia era."
- 2009 **MSc. in Physics and Astrophysics**, *University of Torino*, Torino, Luca Bianchi.  
"Ricostruzione dell'assetto nella missione Gaia. L'approccio per il modulo Global Sphere Reconstruction."
- 2009 **MSc. in Physics and Astrophysics**, *University of Torino*, Torino, Paolo Donati.  
"Test astrometrici di Relatività Generale col progetto GAME"
- 2008 **BSc. in Physics**, *University of Torino*, Torino, Luca Bianchi.  
"Software N-body per la simulazione di sistemi planetari extrasolari"

## Education

- 2001 **Ph.D. in Space Science and Technology**, *University of Padova*, Padova.  
title *General Relativistic Astrometry from Space. Theoretical Modeling and Software Implementation for Data Reduction*  
supervisors Prof. Fernando de Felice, Dr. Mario G. Lattanzi, Prof. Pierluigi Bernacca
- 1996 **Degree in Physics**, *University of Padova*, Padova.  
title *Astrometria relativistica. Applicazioni al progetto GAIA (in italian)*  
supervisors Prof. Fernando de Felice, Dr. Mario G. Lattanzi, Prof. Pierluigi Bernacca

## Schools and courses

- 2008 **Tecnologie Object Oriented**, *University of Torino*, Torino.  
(Object-oriented technologies. Java module of the course)
- 2007 **Introduzione alla programmazione message-passing su sistemi paralleli**, *Department of Mathematics. University of Torino*, Torino.  
(Introduction to Message Passing Programming on Parallel Systems)
- 2006 **Corso Avanzato di Calcolo Parallelo e Grid Computing**, *Astrophysical Observatory of Catania*, Catania.  
(Advanced Course on Parallel and Grid Computing)
- 2002 **Ottimizzazione di traiettorie nel volo spaziale**, *CNUCE-CNR Pisa Research Area*, Pisa.  
(Trajectories optimization in space flight)
- 2001 **GAIA, A European Space Project**, *Les Houches*, France.  
Summer School
- 1999 **International School of Space Science**, *L'Aquila*, Italy.  
High Precision Interferometry from Space
- 1999 **8th Summer School of Parallel Programming**, *CINECA*, Casalecchio di Reno (BO), Italy.

## Research interests

- Gravity theories and their experimental tests

- Relativistic astrometry modelling and observations from the ground and from space
- High-performance computing, big data and numerical methods
- Archaeoastronomy

## Memberships

- INFN (National Institute of Nuclear Physics) from 2001 to 2003
- Gaia DPAC (Data Processing and Analysis Consortium of the ESA Gaia mission)
- SIGRAV (Italian Society of General Relativity and Gravitation )

## Assignments

- Co-Manager of the Work Package “RAMOD model” of the Coordination Unit 3 (DU “Relativistic Models and Tests”) of the Gaia DPAC.
- Manager of the Work Package “Numerical comparison of RAMOD and GREM model” of the Coordination Unit 3 (DU “Relativistic Models and Tests”) of the Gaia DPAC.
- Manager of the Work Package “GSR development and maintenance” of the Coordination Unit 3 (DU “Astrometric Verification”) of the Gaia DPAC.
- Local responsible for the North-West area of Italy of the organization of the Italian Astronomical Olympiad.

## Seminars and Invited talks

- *Relativistic models for the Gaia observations*, seminar held at the Astronomical Department of the University of Barcelona, Spain, on October 14, 2002.
- *Testing General Relativity by high precision astrometry*, invited talk at the XXXVI-IIth Rencontres de Moriond “Gravitational Waves and Experimental Gravity”, Les Arcs, France, March 22–29, 2003.
- *Gamma Astrometric Mission Experiment: science case*, invited talk at the XVIII SIGRAV Conference, Cosenza, September 22-25, 2008
- *GSR: The problem of the Global Astrometric Sphere Reconstruction in Gaia*, seminar held at the Shanghai Astronomical Observatory (SHAO), on March 18, 2014
- *Astrometric Experiments in Fundamental Physics: Putting Einstein to Test*, seminar held at the Department of Physics of Fudan University, Shanghai, on March 25, 2014
- *Relativistic Astrometry: history, principles and modeling overview*, seminar held at the Shanghai Astronomical Observatory (SHAO), on April 30, 2014.

## Languages

Italian	<b>Native</b>	<i>Mother Tongue</i>
English	<b>Fluent</b>	<i>Daily practice, working language</i>
French	<b>Basic</b>	<i>Basic communication skills, spoken and written</i>
Spanish	<b>Basic</b>	<i>Basic communication skills, spoken and written</i>

## Observing experience

- Optical photometry with the astrometric reflector REOSC of the Astronomical Observatory of Torino
- Optical astrometry with the MPG/ESO 2.2m telescope at La Silla (Chile), WFI instrument
- Optical astrometry with the ESO NTT telescope at La Silla (Chile), EFOSC2 instrument

## IT Skills

### Development

**Programming** C, C++, Fortran, SQL, Java

**HPC** parallel programming: MPI and OpenMP

**Scripting** bash, sed, awk, Asymptote

**DBMS** relational databases: MySQL, Microsoft Access, PostgreSQL

### Applications

**Scientific** Mathematica, Maxima, Matlab, Octave, IDL,  $\LaTeX$