PhD in Computer Science, Mathematics and Physics

University of Udine - Italy

June 26, 2017 – v. 2.2

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The course in few figures

- Newly instituted in 2014 as successor to previous PhD programmes in CS and M&P
- PhD Cycle XXXIII now starting
- Partnership with Fondazione Bruno Kessler – Trento since Spring 2017 (active with PhD Cycle XXXIII)
- Three year duration
- Call: June-July
- Admission: September
- Start: Each year on November 1st
- PhD thesis to be submitted by the end of 3rd year
- Graduation in spring of the following year

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Research Areas - Computer Science

Algorithms
Automata
Logics

Artificial Vision
Real-Time Systems

Bioinformatics
Medical Informatics

Data Science
Information Retrieval
Machine Learning

Human-Computer Interaction

Knowledge Representation
Automated Reasoning

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Research Areas - **Mathematics**

Algebra
Topology

Algebraic Geometry
Number Theory

Dynamical Systems

Mathematical Analysis

Mathematical Logic

Numerical Analysis
Mathematical Epidemiology

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Research Areas - **Physics**

Astrophysics

Fundamental Interactions

Particle Physics

Physics Education

Semiconductor
and Scintillator-based
Radiation Detectors

Simulation of
Bio- and Nano-Systems

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Supervisors: **Computer Science**

Stefano Burigat – Mobile HCI, Information Visualization, Interface Design, Virtual Reality, …

Luca Chittaro – Virtual Reality, Serious Games, Health and Safety, Persuasive Technology, …

Antonina Dattolo – Inclusive Web design, Semantic and Social Web, ICT for Cultural Heritage

Agostino Dovier – Logic Programming, Knowledge Representation, GPGPUparallelism, …

Federico Fontana – Music Interfaces, Interactive Sound Processing, Sonic Interaction Design, …

Gian Luca Foresti – Computer Vision, Neural Networks, Data and Information Fusion, …

Massimo Franceschet – Network science, Bibliometrics, Logic, Temporal Knowledge, …

Oswald Lanz – Computer Vision, Camera Networks, Object Tracking, Audio Visual Tracking, …

Stefano Mizzaro – Web Information Retrieval, Crowdsourcing, Data Science, Social Computing, …

Angelo Montanari – Temporal logics for computer science, Spatio-temporal databases, Big data, …

Carla Piazza – Formal Verification, Hybrid Systems, Model Checking Algorithms, Systems Biology, …

Alberto Policriti – Computable Set Theory, Algorithms, Bioinformatics, Computational Biology, …

Giuseppe Serra – Machine Learning, Neural Networks, Pattern Recognition, …

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Supervisors: **Mathematics**

Dimitri Breda - Numerical Methods; Dynamical Systems; Eigenvalues Approximation, Delay, …

Pietro Corvaja - Diophantine Geometry, Number Theory

Dikran Dikranjan - Topological groups, Duality, Entropy, Categorical Topology and Algebra, …

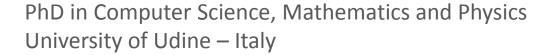**Anna Giordano Bruno** - Topological Groups, Algebraic Entropy, Pontryagin Duality, …

Alberto Marcone - Reverse Mathematics, Weihrauch Degrees, WQOs and BQOs, …

Stefano Merler - Mathematical Epidemiology, Computational Epidemiology, Dynamical Systems

Rossana Vermiglio - Numerical Methods, Delay Equations, Numerical Stability and Bifurcation

Fabio Zanolin — Dynamical Systems, Chaos Theory, Nonlinear Analysis, Fixed Points

Francesco Zucconi — Algebraic Geometry, …

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Supervisors: **Physics**

Barbara De Lotto – Astroparticle Physics, Very High Energy Gamma Astrophysics, …

Federico Fogolari – Molecular Modeling, Structural Biology, Biomolecular Simulations, …

Paolo Giannozzi – Methods and Software for Electronic-structure Calculations, …

Claudio Piemonte – High-Energy Radiation Sensors, Single Photon Detectors, Silicon Micro-technology

Lorenzo Gianni Santi – Particle Physics, Detector R&D; Physics Education (with M. Michelini), …

Andrea Vacchi – X-ray and High-Energy Astrophysics, Semiconductor based Detectors Development, …

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Funding

- Standard scholarship: € 13.638,47 per year
- Supplements per month abroad: € 568 (max 6 months)
- Max 18 (average 3-6) months outside Italy
- About € 3000 for traveling, schools…
- Specific scholarships (Bruno Kessler, industry, EU)
- Other research funds provided by the Supervisor and his/her Lab/Institute

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Research Labs

Laboratory	Supervisors in the Lab	Web Address
Artificial Vision & Real-Time Systems	Gian Luca Foresti (Head)	avires.dimi.uniud.it
Bioinformatics, Verification & Parallel Computing	Alberto Policriti (Head) Carla Piazza	bioinf.dimi.uniud.it
Constraint Logic Programming	Agostino Dovier (Head)	clp.dimi.uniud.it
Context-Aware and Mobile Systems Laboratory	Stefano Mizzaro (Head)	smdc.uniud.it
Data Science	Angelo Montanari (Head) Massimo Franceschet	datasciencelab.dimi.uniud.it/en
Dynamical Processes in Complex Societies	Stefano Merler (Head)	dpcs.fbk.eu
Human-Computer Interaction	Luca Chittaro (Head) Stefano Burigat Federico Fontana	hcilab.uniud.it
IRIS Research Unit	Claudio Piemonte (Head)	iris.fbk.eu
Semantic, Adaptive and Social Web	Antonina Dattolo (Head)	sasweb.uniud.it
Silicon Detectors	Andrea Vacchi (Head)	atlasud.uniud.it/lab/
Technologies of Vision	Oswald Lanz	tev.fbk.eu

Scholarships - A growing scenario

Year	Funding			Applications
	University	Industry	EU / Other	
2014	6	1	0	**26**
2015	6	1	4	**13**
2016	6	1	3	**71**
2017	4	2	7	**Call open**

Few additional positions available without scholarship

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Workplan

1st year

- Attend courses/schools (at least one outside the research discipline), also organized by the University
- Begin research activity
- End-of-the-year evaluation (learning activity & research plan)

2nd year

- Conclude the learning activity (three PhD credits must be taken)
- Research activity full immersion
- End-of-the-year evaluation (learning activity & research activity)

3rd year

- Conclude research and write PhD thesis
- Exhibition at the University (PhD Expo)
- Admission to the final exam (external review of the PhD thesis)

Beginning of the new year: discussion of the thesis, graduation

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Additional info

General information, call for PhD:

- www.uniud.it/en/research/research-doctorate/phdstudies
- phd.dimi.uniud.it

Information about Fondazione Bruno Kessler:

- www.fbk.eu/en/

Contacting a supervisor from the PhD Board:

- www.dimi.uniud.it/la-ricerca/dottorato/informatica-e-scienze-matematiche-e-fisiche/collegio-dei-docenti/

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