

# University Academic Curriculum Vitae

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## Personal information

Name: **FEDERICO CORNI**  
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## Education since leaving school

### Year and title of degree; (and university)

1986. Laurea with LODE in Physics (Vecchio Ordinamento) at the Università degli Studi di Modena.  
Title of the thesis: “Spettroscopia EXAFS con luce di sincrotrone: applicazione all'indagine dell'ordine atomico locale in film Cu-Au interdificati termicamente” (EXAFS spectroscopy with synchrotron radiation: application to the investigation of local atomic order in thermally interdiffused Cu-Au films), supervisor: prof. G.M. Antonini.

### Year, subject area and title of Habilitation

2018. Abilitazione Scientifica Nazionale (National Scientific Qualification) (bando D.D. 1532/2016) for full professor (professore di prima fascia) from 10/4/2018 to 10/4/2024, S.C. 02/D1-FIS/08 Fisica Applicata, Didattica e Storia della Fisica.

### Advanced courses:

- 1986/87. Corso annuale di perfezionamento in “Metodologia della ricerca di Laboratorio” (Annual advanced course in “Methodology of laboratory research”) at Dipartimento di Fisica of the Università di Modena (director: Maurizio Pellegrini)

### Schools:

- 2-10/5/1985. Scuola Sperimentale “Tecniche per l'uso della radiazione di sincrotrone” (Experimental School “Techniques for the use of synchrotron radiation”) at National Frascati Labs (director: prof. Mario Piacentini);
- 14/9-1/10/1985. 30th. Scottish Universities Summer School in Physics “Synchrotron radiation, sources and

applications” Aberdeen University (GB) (director: G.W. Marr)

- 1-13/7/1991. International School of Materials Science and Technology, 22nd course: “Semiconductor materials and processing technologies: the role of phase transition, defects and diffusion” at Centro E. Majorana in Erice (director: John Poate and Emanuele Rimini);

## Present appointment

**Title of appointment, start of appointment, level of appointment (in national / international context), employer (University, research institute, status of university / institute)**

- **Professore Ordinario** (Full professor) from 1/2/2019.  
Faculty of Education  
Free University of Bozen-Bolzano  
SSD FIS/08 Didattica e Storia della Fisica  
SC 02/D1 Fisica Applicata, Didattica e Storia della Fisica

## Professional experience

**Chronological list of all previous employments (each with job title, starting and finishing dates, level, employer, responsibilities)**

From / to	Job title	Name of academic Institution	Academic level	Responsibilities
31/12/2012-31/1/2019	University Professor	Università di Modena e Reggio Emilia	Associate Professor	Courses, research programs, and academic responsibilities
1/7/95 – 30/12/02	University Researcher	Università di Modena e Reggio Emilia	Ricercatore Universitario B01 – Fisica Generale e Complementi	RBS and Nuclear Techniques;  Design and development of the Thermal Desorption Laboratory and the Time Resolved Reflectivity Laboratory of the MASESM Laboratory - Materiali Avanzati per Sistemi $\mu$ -Elettro-Meccanici
16/9/1988 – 30/6/1995	Graduate technician of Vacuum	Università di Modena	Funzionario Tecnico VIII qualifica funzionale dell'area	Ion Implantation Laboratory

			tecnico scientifica e socio sanitaria	
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From / to	Job title	Employer	Level	Responsibilities
23/1/1987 – 9/9/1988	Professor of Math and Physics	Istituto G. Tiraboschi di Modena	Upper Secondary School	Various courses of Math and Physics for Technical Institute for Sureyors and Langauge Lyceum

### Experience in academic teaching

### Title of courses given (last 5 years), name of University/Institute, subject area, academic level (under-/post-graduate / PhD), results of evaluations (full details in attachments)

#### UNIVERSITY COURSES (at UNIBZ, UNIMORE, UNIVR e UNIUD):

- From academic year 2016-17 to present: **Didactics of Inorganic Nature 1** (10 hours); Libera Università di Bolzano, Master degree in Sciences of Primary Education
- From academic year 2017-18: **Didactics of Inorganic Nature 2** (50 hours) with **Laboratory** (20 hours); Libera Università di Bolzano, Master degree in Sciences of Primary Education
- From academic year 2014-15 to 2016-17: **Didactics of Inorganic Nature 1+2** (60 hours) with **Laboratory** (20 hours); Libera Università di Bolzano, Master degree in Sciences of Primary Education.
- From academic year 2001-02 to 2018-2019: **Physics** (56 hours) with **Laboratory** (16 hours) (master), previously: Foundations of Physics and Preparation of Didactic Experiences (4 year bachelor); Università degli Studi di Modena e Reggio Emilia, Master degree in Sciences of Primary Education
- From academic year 2016-17 to 2018-2019: **Chemistry** (32 hours); Università degli Studi di Modena e Reggio Emilia, Master degree in Sciences of Primary Education
- From academic year 2001-02 to 2016-17: **Experimental Physics** (25 hours); Università degli Studi di Modena e Reggio Emilia, Bachelor in Strategic Sciences at Military Academy

- From academic year 2010-11 to 2015-16: **General Physics** (52 hours); Università degli Studi di Modena e Reggio Emilia, Bachelor in Geological Sciences
- Academic year 2014-15: **Foundations and Didactics of Physics** (60 hours) with **Laboratory** (16 hours); Università degli Studi di Verona, Master degree in Sciences of Primary Education
- From academic year 2005-7 (IDIFO) to present (IDIFO6): various courses (in presence and on-line) and laboratories, mainly about matter physics analysis techniques for school didactics; last course in academic year 2016-17: **The Industrial Educational Laboratory Fisica in Moto of Ducati Foundation: reflecting on mechanics in an informal context**; National Coordinator for PLS Piano Lauree Scientifiche: Università degli Studi di Udine, Master di II livello e Corso di Perfezionamento “IDIFO6 - Innovazione Didattica in Fisica e Orientamento”

**Postgraduate supervision (PhD level): number of students supervised in the last 5 years with subject areas:**

**Supervision of 3 PhD students:**

- dott. **Cristina Mariani**, subject area: Curricular development of the concept of energy in primary school, XXV cycle, UNIMORE
- dott. **Alessandro Ascari**, subject area: Physics communication in informal contexts (with Industrial PhD scholarship from Fondazione Ducati), XXVIII cycle, UNIMORE
- dott. **Alessandra Landini**, subject area: Science Vertical Curriculum in Primary School, XXXI cycle (present), UNIMORE.

**Master theses supervision: number of students supervised in the last 5 years with subject areas:**

- at the Free University of Bolzano – Faculty of Education **8 theses** in “Scienze della Formazione Primaria” (3 in the recent 5 years master degree, 5 in the previous 4 years master degree) in the subject area of physics and sciences for kindergarten and primary school
- at the University of Modena and Reggio Emilia – Department of Education and Humanities **35 theses** in “Scienze della Formazione Primaria” (10 in the recent 5 years master degree, 25 in the previous 4 years master degree) in the subject area of physics and sciences for kindergarten and primary school (theses since the institution of the master degree: **74**)

### Teacher training course in the last 3 years:

- From school year 2009-10 to present - several public schools in the Province of Modena  
***Little scientists in the lab. Stories, experiments and models for science education and training in primary school*** (on average 25 classes per year, 12 hours per year)  
Responsible and coordinator of training activities for in-service primary school teachers
- From school year 2011-2012 to present – MEMO Multicentro Educativo del Comune di Modena Sergio Neri  
***The Knowledge of the World: the science approach in kindergarten*** (12 hours/year)  
Training course for kindergarten teachers (and nursery school in the last 4 years) of the Municipality of Modena
- School year 2017-18 – Officina educativa dei Servizi educativi del Comune di Reggio Emilia  
***Little Scientists – Science paths in primary school*** (9 hours)  
Training course for teachers and inclusion educators of the S.E.I. services of the Municipality of Reggio Emilia
- 7/11/2016-7/2/2017 – Provincia Autonoma di Bolzano-Alto Adige (BZ)  
***Science education – Science Laboratory about Water*** (12 hours)  
Training course for kindergarten and primary school teachers at Facoltà di Scienze della Formazione della Libera Università di Bolzano (Bressanone) using the Idrolandia Didactic Suitcase
- 2/2-2/3/2017 – Università Cattolica del Sacro Cuore, Brescia  
***Problems, experiences and experiments*** (3 hours)  
Advanced training course for primary and lower secondary school teachers

### Other academic responsibilities

### Internal appointments to faculty and university boards:

- ***Founder and President of the Scientific Committee*** of the Research Center MANIS – Metaphor and Narrative In Science (from foundation in 2017 to present) (see [www.manis.unimore.it](http://www.manis.unimore.it))
- ***Coordinator*** of the Department of Education research

- **Member** of the Committee of the PhD School in Humanities (Collegio docenti della Scuola di Dottorato di ricerca in Scienze Umanistiche) Università di Modena e Reggio Emilia from 01-01-2011 to 31-10-2017
- **Responsible**, from school year 2009-10 to present, of **several institutional agreements** between the Department of Education and Humanities of the University of Modena and Reggio Emilia and public schools in the Province of Modena for teacher training programs and didactic interventions in the classes named **“Little scientists in the lab. Stories, experiments and models for science education and training in primary school”**.
- **Member of various PhD final exam committees** in Math and Physics (UNIUD), Physics (UNITN), Science Technology and Humanities (UNIBO).

#### External appointments at national and international level:

- From 1/1/2018 to 31/12/2020: **Principal Investigator of the European Project**: FCHgo - Fuel Cells HydroGen educational model for schools (proposal 826246), Horizon 2020 Program (at the stage of grant agreement preparation). Since 1/2/2019: Responsible of the UNIBZ partner
- From 5/9/2018 to present: **member of the Board of Advisors for the Centre For Imagination In Research, Culture, & Education (CIRCE)**, Faculty of Education, Simon Fraser University.
- From 12/2017 to present: **Leader** (with Stamatis Vokos - California Polytechnic State University, San Luis Obispo, USA) **of the GIREP Thematic Group** on Physics Preparation of Teachers in Grades K-6.
- From 12/2017 to present: **Responsible and director of the Italian research program Learning in Depth** (Kieran Egan and Gillian Judson, IERG Imaginative Education Research Group, Simon Fraser University, Vancouver, Canada)
- From 2008 to present: **Scientific responsible of the Fisica in Moto Didactic Laboratory** of Ducati Foundation.
- From 18/6/2014 to 15/9/2014: **Appointment for evaluation studies of the Piani di Studio della Scuola dell'Obbligo Ticinese**, given by the Repubblica del Canton Ticino, Dipartimento dell'Educazione della cultura e dello sport, Divisione della Scuola, Gruppo operativo Harnos - Bellinzona – Svizzera.
- From 11/4/2012 to 31/7/2012: **Expert consultant of MIUR Italian Ministry of Instruction, University and**

**Research** for studies of revision of the **National Guidelines for the Curriculum of Kindergarten and First Instruction Cycle (Indicazioni Nazionali per il curriculum della scuola dell'infanzia e del primo ciclo di istruzione)** (see the list of experts published at p.2 of the final official document) – part of science.

- From 19/5/2006 to 14/12/2007: **Member of the committee of the Sovrintendenza Scolastica di Bolzano for writing the Learning Specific Objectives (Obiettivi Specifici di Apprendimento) for math, science and technology.**
- **External participation as collaborator of the University of Udine to the MIUR PRIN Research Program of National Interest 2004-2007:** “Percorsi di Formazione in Fisica per il 21° Secolo” (Training paths in Physics for the 21<sup>st</sup> Century), scientific responsible prof. Marisa Michelini, scientific coordinator: prof. Paolo Guidoni.
- **Participation as member of the University of Udine to the MIUR PRIN Research Program of National Interest 2001-2004:** “L'educazione scientifica di base e le basi culturali della meccanica quantistica: due sfide nella formazione dell'insegnante” (Basic science education and the cultural bases of quantum mechanics: two challenges in teacher training), scientific responsible prof. Marisa Michelini, scientific coordinator: prof. Paolo Guidoni.
- **Participation as member of the University of Udine to the MIUR PRIN Research Program of National Interest 1999-2001:** “Innovazione didattica e formazione degli insegnanti in campo scientifico: l'impiego delle nuove tecnologie nell'insegnamento scientifico per l'aggiornamento del curriculum e il miglioramento dell'apprendimento” (Teaching innovation and teacher training in science: the use of new technologies in science teaching for curriculum updating and improvement of learning), scientific responsible prof. Marisa Michelini, scientific coordinator: prof. Paolo Guidoni.
- **Referee of International Journal of Science Education**
- **Referee of various international conferences, e.g. GIREP – International Research Group of Physics Teaching, and ESERA – European Science Education Research Association.**

**Responsibilities for organizing conferences-seminars-exhibitions (place, duration, institute)**

**CONFERENCE ORGANIZATION:**

- Organization and member of the scientific committee of the International Conference “Education, Earth, Nature” 2017 and 2018  
Facoltà di Scienze della Formazione, Libera Università di Bolzano.
- Organization (scientific responsible) of the International Conference “Innovation in Science Education in Primary School and Kindergarten: crossroads between science and humanities”  
Università di Modena e Reggio Emilia  
01-02-2019 to 02-02-2019  
02-12-2016 to 03-12-2016  
21-11-2014 to 22-11-2014  
30-11-2012 to 01-12-2012  
12-11-2010 to 13-11-2010
- Organization of the SIPED Conference 2015  
“Permanent Education from early childhood. From Kindergarten to University”  
Facoltà di Scienze della Formazione, Libera Università di Bolzano, Bressanone  
From 03-12-2015 to 05/12/2015

#### **SYMPOSIUM, WORKSHOP AND SEMINAR ORGANIZATION:**

- Organization of the Symposium “Research-based Approaches to Preparing Teachers in Grades K-6 to Teach Foundational Physics Concepts and Skills through the Practices of Physics”  
GIREP-MPTL International Conference “Research and Innovation in Physics Education: two sides of the same coin”  
Universidad del Pais Vasco – San Sebastian, Spain.  
Leader: F. Corni  
From 09-07-2018 to 13-07-2018
- Organization of the Symposium “Conceptual Metaphor and Physics Education”  
GIREP ICPE EPEC International Conference “Bridging Research and Practice in Physics Teaching and Learning”  
Dublin City University - Dublin, Ireland.  
Leaders: F. Corni, H.U. Fuchs  
Form 03-07-2017 to 07-07-2017
- Organization of the International Workshop



“Modern Physics and Advanced Labs, bridging between theory and experiments in teaching/learning”  
GIREP 2016 SEMINAR “Research-based proposals for improving physics teaching and learning – focus on laboratory work”

Kraków, Poland

Leaders: D. Sands, F. Corni

From 30-08-2016 to 03-09-2016

- Organization of the International Workshop  
“Center for Narrative Studies in Science: An Exploratory Workshop”  
Hotel Hof, Weissbad, Appenzell, Switzerland  
Leaders: E. Dumont, F. Corni, H.U. Fuchs  
Form 06-07-2015 to 09-07-2015
- Organization of the International Workshop  
“Science and Language The Art and Science of Science Communication”  
Università di Modena e Reggio Emilia  
Leaders: F. Corni, H.U. Fuchs  
From 22-11-2013 to 22-11-2013
- Organization of the International Workshop  
“Teaching and learning the energy concept and teacher formation in primary school”  
GIREP International conference 2011  
University of Jyvaskyla  
Leaders: F. Corni, M. Michelini, L. Santi  
From 01-08-2011 to 05-08-2011
- Organization of the International Seminar  
“The Meaning of a Description of Nature”  
Keynote: Jerome Bruner  
Università di Modena e Reggio Emilia  
Leader: F. Corni  
13/6/2011

#### **EXHIBITIONS:**

##### ***Member of the scientific committee of the exhibition***

“Tutti i colori delle stelle. Padre Angelo Secchi e la nascita dell'astrofisica” (All colours of the stars. Father Angelo Secchi and the birth of astrophysics)

Scientific and didactic collaboration to the development of a laboratory section about light and spectroscopy.

Musei Civici di Reggio Emilia

Form 20/10/2018 to 31/1/2019.

## INDUSTRIAL EDUCATIONAL LABORATORIES:

- Scientific and didactic responsibility of the ***Fisica in Moto Laboratory of the Ducati Foundation*** in Borgo Panigale (BO), from the foundation in March 2006 to present: development of the didactic contents and methods, training of the staff for the visits of the schools during the school year, organization of 8 summer schools for secondary school students, organization of 2 secondary school teacher training courses, organization of 1 secondary school deans.
- Collaboration with ***Dallara Group*** in Varano de Melegari (PR), from July 2017 to present, for the design, development and production of didactic experimental station prototypes for the Dallara Motorsport Academy project “Scienza e tecnica da corsa. Progettare la velocità”, and for the development of didactic contents and methods for the schools.
- Collaboration with ***Autostadt (Wolfsburg, Germany) – Volkswagen***, from July 2013 to 2015, for the development of experiments for the didactic laboratory activities offered to German schools.

## Membership of academic or professional bodies (including membership of Editorial Boards of scientific publications; membership of scientific committees for international conferences)

Member of ***GIREP – International Research Group of Physics Teaching***

### Memberships

Member of ***SIF – Italian Physical Society***

Member of ***AIF – Italian Association of Physics Teachers***

Founder and President of the Scientific Committee of the ***Research Center MANIS – Metaphor and Narrative In Science*** (from foundation in 2017 to present) (see [www.manis.unimore.it](http://www.manis.unimore.it))

Member of the Scientific Committee of the International Conference ***Educazione, Terra, Natura*** (Education, Earth, Nature), Facoltà di Scienze della Formazione, Libera Università di Bolzano.

29/11/2018-01/12/2018

Member of the Scientific Committee of the International Conference **Educazione, Terra, Natura** (Education, Earth, Nature), Facoltà di Scienze della Formazione, Libera Università di Bolzano.  
30/11/2017-02/12/2017

Member of the Inter-regional Program Committee of the **1st Inter-regional Conference on Science and Mathematics Education Research**  
American University of Beirut, Beirut, Lebanon  
25/11/2016-27/11/2016

Scientific responsible of the biannual International Conferences **Innovazione nella didattica delle scienze nella scuola primaria e dell'infanzia: al crocevia fra discipline scientifiche e umanistiche**  
Università di Modena e Reggio Emilia  
Edizioni 2010, 2012, 2014, 2016 e 2018

Member of the editorial board of **La Fisica nella Scuola, journal of the Italian Association of Physics Teachers**  
From 08-01-1994 to present

Member of the scientific committee of the editorial series **Educazione Terra Natura**  
Direttore: Liliana Dozza – Publisher: ZEROSEIUP  
From 01-11-2017 to present

Inclusion in the **Banca Dati Esperti del MIUR (Data Base of Experts of MIUR – Italian Ministry of Instruction, University and Research)**, created with decree prot. n. AOODGAI/5071 date 12.10.2009, about the themes concerning the national and international researches for the assessment of young people and adult skills in the system of instruction and training (INVALSI, OCSE-PISA, OCSE-ALL, IEA-TIMSS and IEA-PIRLS surveys) (Programmazione Fondi Strutturali 2007/2013- PON “Competenze per lo Sviluppo” Fondo Sociale Europeo: Asse I – Capitale Umano - Obiettivo B. Azione B 3 - Interventi di formazione sulla valutazione nei processi di apprendimento”. Piano nazionale di informazione e sensibilizzazione sull'indagine OCSE-PISA e altre ricerche internazionali.)

Associated to the research activities of the **Laboratori Nazionali di Legnaro** of the **Istituto Nazionale di Fisica Nucleare (INFN)** with access to AN2000 e CN accelerators for nuclear analysis techniques (Rutherford Backscattering

Spectrometry, Elastic Recoil Detection, Nuclear Reaction Analysis)  
From 1997 to 2012

Associated to the research activities of the ***Istituto Nazionale di Fisica della Materia (INFN)***  
From 2000 to 2005

## Research and scholarships

### Summary of current research and scholarship

Main topics of research are:

1 - Pre-service and in-service teacher training, and curriculum of physics and sciences in kindergarten and primary school

2 - Role of metaphor and language

3 - Scientific communication and informal learning contexts

4 - Analysis techniques, concepts and tools in matter physics

5 - Modelling in physics and science education

## Publications

### Publications over the last 15 years in chronological order:

#### • Books – Edited

In press

*F. Corni, T. Altiero, A. Landini (Eds.).*

Innovazione nella didattica delle scienze nella scuola primaria e dell'infanzia: al crocevia fra discipline scientifiche e umanistiche.

Proceedings 2016. Selected papers.

PADOVA: CLEUP

2015

*F. Corni, T. Altiero (Eds.).*

Innovazione nella didattica delle scienze nella scuola primaria e dell'infanzia: al crocevia fra discipline scientifiche e umanistiche.

Proceedings 2014. Selected papers.

MANTOVA: Universitas Studiorum

ISBN: 9788899459284

2014

*F. Corni, T. Altiero (Eds.).*  
Innovazione nella didattica delle scienze nella scuola  
primaria e dell'infanzia: al crocevia fra discipline  
scientifiche e umanistiche.  
Proceedings 2012. Selected papers.  
MANTOVA: Universitas Studiorum  
ISBN: 9788897683414

2013  
*F. Corni (Ed.).*  
Le scienze nella prima educazione - Un approccio  
narrativo a un curriculum interdisciplinare.  
GARDOLO (TN): Edizioni Centro Studi Erickson  
ISBN: 9788859004936

2011  
*F. Corni, C. Mariani, E. Laurenti (Eds.).*  
Innovazione nella didattica delle scienze nella scuola  
primaria: al crocevia fra discipline scientifiche e  
umanistiche. Seminari, aperture, contributi di ricerca,  
esperienze di pratica didattica.  
Proceedings 2010. Selected papers.  
MODENA: Artestampa  
ISBN: 9788864620916

- **Chapters in books**

*In press*  
*F. Corni, H.U. Fuchs*  
*Metafore vive per l'energia. Ergolandia, la valigia*  
*didattica per introdurre l'energia come tema verticale*  
*dalla Scuola dell'Infanzia alla Scuola Secondaria di*  
*primo grado.*  
In L. Dozza (Ed.): *Maestra Natura. Per una*  
*pedagogia esperienziale e co-partecipata.*  
Bergamo: ZEROSEIUP

2019  
*H. U. Fuchs, A. Contini, E. Dumont, A. Landini, F.*  
*Corni*  
*How metaphor and narrative interact in stories of*  
*forces of nature.*  
In M. Hanne and A. Kaal (Eds.): *Narrative and*  
*Metaphor in Education: Look Both Ways.*  
London, New York: Routledge  
ISBN: 9781138310872

2016  
*A. Landini, F. Corni*

*Metafora e narrazione nella didattica delle scienze: nuovi strumenti e prospettive per l'educazione scientifica e la crescita professionale del docente.*  
In Gina Chianese (Ed.): *Costruzione del profilo professionale. Pratiche narrative e riflessive.*  
p. 98-108  
MILANO: Franco Angeli  
ISBN: 9788891751836

2013  
F. Corni  
*Force Dynamic Gestalt, image schema e concetti scientifici.*  
In: F. Corni (Ed.): *Le scienze nella prima educazione.*  
p. 103-128  
Gardolo (TN): Edizioni Centro Studi Erickson  
ISBN: 9788859004936

2012  
F. Corni, E. Giliberti, C. Mariani  
*Piccoli scienziati in laboratorio. Percorsi di formazione scientifica per insegnanti di scuola primaria.*  
In: L. Dozza, G. Chianese (Eds.): *Una società a misura di apprendimento. Educazione permanente tra teorie e pratiche.*  
p. 83-97  
Milano: Franco Angeli  
ISBN: 9788856849158

2010  
Corni F., Mariani C.  
*Analisi dei risultati delle prove OCSE-PISA 2006 a risposta chiusa con l'indicatore di "concentrazione".*  
In: Spadolini Bianca (Ed.): *INVALSI - PISA 2006*  
*Approfondimenti tematici e metodologici.*  
p. 219-234  
ROMA: Armando Editore  
ISBN: 9788860816658

2010  
F. Corni  
*RBS-Rutherford Backscattering Spectroscopy: Cimentarsi in una tecnica di analisi nella fisica dei solidi.*  
In: M. Michelini (Ed.): *Fisica moderna per la scuola. Materiali, aspetti e proposte per l'innovazione didattica e l'orientamento.*  
p. 109-120  
Udine: Università degli Studi di Udine

ISBN: 9788897311027

2010

F. Corni, G. Ottaviani, A. Mossenta

*Tecniche di analisi di fisica della materia e proposte didattiche dai laboratori MASEM: formare gli insegnanti al raccordo tra fisica classica e moderna.*

In: M. Michelini (Ed.): *Formazione a distanza degli insegnanti all'innovazione didattica in fisica moderna e orientamento.*

p. 123-136

Udine: Università degli Studi di Udine

ISBN: 9788897311010

2009

F. Corni, E. Giliberti, M. Michelini, L. Santi, A. Stefanel

*La formazione iniziale degli insegnanti di scuola primaria come problema di ricerca.*

In: P. Guidoni, O. Levrini (Eds.): *Approcci e proposte per l'insegnamento-apprendimento della fisica a livello preuniversitario, dal progetto PRIN 'F21'.*

p. 225-228

Udine: Forum

ISBN: 9788884204523

2009

F. Corni, M. Michelini, L. Santi, A. Stefanel

*Un modo di guardare all'educazione scientifica e un approccio di ricerca.*

In: P. Guidoni, O. Levrini (Eds.): *Approcci e proposte per l'insegnamento-apprendimento della fisica a livello preuniversitario, dal progetto PRIN 'F21'*

p. 133-142

Udine: Forum

ISBN: 9788884204523

2005

F. Corni, M. Michelini

*A physics learning proposal on phase diagrams.*

In: Michelini M. (Ed.): *Physics Teaching and Learning, GIREP book of selected papers, dedicated to the memory of professor Arturo Loria.*

p. 167-180

Udine: Forum

ISBN: 9788884202802

2005

F. Corni, G. Ottaviani

*Physics and Art: introducing light-matter interaction by looking at famous paintings.*  
In: Michelini M. (Ed.): Physics Teaching and Learning, GIREP book of selected papers, dedicated to the memory of professor Arturo Loria.  
p. 35-38  
UDINE: FORUM  
ISBN: 9788884202802

2004  
*F. Corni, M. Michelini, L. Santi, A. Stefanel  
Sperimentazione incrociata di materiali per la  
formazione insegnanti a Udine, Modena e Bolzano  
sulla meccanica.*  
In: Michelini M. (Ed.): Formazione iniziale degli insegnanti di scuola secondaria a Udine. Primi contributi.  
p. 222-231  
Udine: Forum  
ISBN: 9788884202062

2004  
*F. Corni, M. Michelini, A. Stefanel  
Strategie di formazione iniziale degli insegnanti: una  
ricerca coordinata in un modulo di intervento  
formativo a Reggio Emilia e Udine.*  
In: Michelini M. (Ed.): L'educazione scientifica nel raccordo territorio/università a Udine.  
p. 263-275  
Udine: Forum  
ISBN: 9788884202475

2004  
*F. Corni, M. Michelini (2004).  
Strategies in formative intervention modules for  
physics education of primary school teachers: a  
coordinated research in Reggio Emilia and Udine.*  
In: Michelini M. (Ed.): Quality development in teacher education and training - GIREP seminar 2003 book of selected papers.  
p. 382-386  
Udine: Forum  
ISBN: 9788884202253

- **Conference papers**

*F. Corni, H.U. Fuchs, E. Dumont*



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F. Corni, E. Mazzega, M. Michelini, G. Ottaviani (1995).

Capire la Time-Resolved Reflectivity: una tecnica di analisi basata sull'interferenza da lamina sottile.

LA FISICA NELLA SCUOLA, vol. XXVIII, pp.31-38.

ISSN:1120-6527

#### Further data

**Presentations at scientific conferences over past 3 years (invited or selected, keynote, nature and status of conference)**

#### INVITED ORAL PRESENTATIONS:

*Energie e forze della natura: un percorso didattico verticale*

*F. Corni*

International Conference "Educazione, Terra, Natura", Facoltà di Scienze della Formazione, Libera Università di Bolzano, 29/11-1/12/2018

*Mediazione mediatori didattici*

M.A. Mariotti, P.G. Rossi (Keynote speech)

G. Bonaiuti, F. Corni (Discussant)

Seminar: "Didattica e saperi disciplinari – Atto II"

*Università di Milano Bicocca, 15-16/3/2018*

*Visual metaphors for Energy. Ergolandia: introdurre l'energia come tema verticale, dall'infanzia alla scuola secondaria di primo grado con la valigia dell'energia*

*F. Corni, H.U. Fuchs*

International Conference “Educazione, Terra, Natura”, Facoltà di Scienze della Formazione, Libera Università di Bolzano, 30/11-2/12/2017

*Idrolandia: introdurre concetti scientifici di base con la valigia dell'acqua*

F. Corni, E. Giliberti.

International Conference “Educazione, Terra, Natura”, Facoltà di Scienze della Formazione, Libera Università di Bolzano, 30/11-2/12/2017

*Metafora concettuale e didattica della fisica*

F. Corni

103° National Conference of the Italian Physical Society, Università di Trento, 11-15/9/2017

*Story-telling e didattica in ambito scientifico*

F. Corni

Seminar

Facoltà di Scienze della Formazione, Libera Università di Bolzano, Bressanone, 28/11/2016

*I prerequisiti di matematica per il corso di Scienze della Formazione Primaria*

F. Corni

Workshop

Facoltà di Scienze della Formazione, Libera Università di Bolzano, Bressanone, 3/11/2016

*Storie di scienze all'interno di Spazi locali di Innovazione Didattica, MultiLab e Officina Didattica*

F. Corni

SIPED Conference 2015. L'educazione permanente a partire alle prime età della vita. Dalla scuola dell'Infanzia all'Università.

Libera Università di Bolzano, Bressanone, 3-5/12/2015

*MultiLab e Officina delle innovazioni didattiche: workshop ed esposizione interattiva ne Foyer*

F. Corni (Workgroup leader)

SIPED Conference 2015. L'educazione permanente a partire alle prime età della vita. Dalla scuola dell'Infanzia all'Università.

Libera Università di Bolzano, Bressanone, 3-5/12/2015

*Ruolo dell'animazione e delle nuove tecnologie in campo educativo*

F. Corni



Seminar  
Facoltà di Scienze della Formazione, Libera  
Università di Bolzano, Bressanone, 28/10/2015

*Learning by doing*

F. Corni  
MultiLab di Matematica-Scienze-Robotica-Statistica  
Facoltà di Scienze della Formazione, Libera  
Università di Bolzano, Bressanone, 20/10/2015

*Scuola-Università. Tirocinio/Formazione in  
servizio/materiali didattici. Esperienze e laboratori di  
scienze.*

F. Corni  
Pedagogic day. Facoltà di Scienze della Formazione,  
Libera Università di Bolzano, Bressanone,  
09/10/2015

*Apprendimento degli studenti*

F. Corni (Reporteur of Work Group H)  
Conference “L’esperienza del PLS: guardando oltre”  
CNR, Roma, 11-12/5/2015

*Rutherford Backscattering Spectrometry: a  
Laboratory Didactic Path about the Basic  
Interpretation Models.*

F. Corni  
Southeastern European Network in Mathematical and  
Theoretical Physics SEENET-MTP International  
Seminar on Trends in Modern Physics (BSS2011).  
Faculty of Science and Mathematics, University of Nis  
(Serbia), 19-21/8/2011

*An approach to the concept of energy for primary  
school: disciplinary framework, elements of didactic  
path and assessment scale.*

F. Corni  
Southeastern European Network in Mathematical and  
Theoretical Physics SEENET-MTP International  
Seminar on Trends in Modern Physics (BSS2011).  
Faculty of Science and Mathematics, University of Nis  
(Serbia), 19-21/8/2011

**SELECTED ORAL PRESENTATIONS:**

*Using Metaphors in Teaching Physics to Student  
Teachers*

F. Corni

Symposium “Conceptual Metaphor and Physics Education” - GIREP ICPE EPEC International Conference "Bridging Research and Practice in Physics Teaching and Learning" - Dublin City University, Dublin, Ireland. 03-07/07/2017

*The role of playing in the representation of the concept of energy: a lab experience for future primary school teachers.*

A. Landini, E. Giliberti, F. Corni

GIREP ICPE EPEC International Conference “Bridging Research and Practice in Physics Teaching and Learning” - Dublin City University, Dublin, Ireland. 03-07/07/2017

Paper awarded as the best PhD oral presentation

*Metaphors to Narratives in Macroscopic Physical Science: Stories of Forces of Nature for Young Children and their Teachers*

A. Contini, F. Corni, A. Landini, H.U. Fuchs, E. Dumont

NAMED 2017 International Conference “Narrative and Metaphor in Education: Look Both Ways.”

Vrije Universiteit (VU) Amsterdam. 30/03-01/04/2017

*Fisica in Moto: un approccio narrativo alla meccanica per studenti di scuola superiore*

F. Corni

103° National Conference of the Italian Physical Society, Università di Trento, 11-15/9/2017

*Didactical activities about the basic phenomena of Rutherford backscattering spectrometry*

F. Corni, A. Mossenta, M. Michelini

Workshop “Modern Physics and Advanced Labs, bridging between theory and experiments in teaching/learning”

GIREP 2016 International Seminar “Research-based proposals for improving physics teaching and learning – focus on laboratory work”

Kraków, Poland. 30/08-3/09/2016

## Entrepreneurship

### Spin-offs, patents and entrepreneurship

PATENT 28-04-2009: United States Patent US 7524736

B2 “Process for manufacturing wafers usable in the semiconductor industry”

Giampiero Ottaviani, Federico Corni, Paolo Ferrari, Flavio Francesco Villa

**Language  
competence**

Excellent knowledge of the Italian language at mother tongue level.

Good knowledge of the English language.

Date: 01/02/2019