



Prof Alessandra Continenza

Lectures:

1) Magnetism

Monday, 13.01.20, 12:15, room 121, Main Building

2) Ab-initio methods in condensed matter physics

Wednesday, 15.01.20, 11:15, room 418, B-Building

Seminar:

Ab-initio predictions for superconducting materials

Friday, 17.01.20, 11:15, room 121, Main Building

Consulting hours:

Tuesday, 14.01.20, 13:00-15:00, room 131, Main Building

Faculty of Applied Physics and Mathematics invites all Students, Staff and Guests to the classes, seminar and consultations with Professor Alessandra Continenza, the Vice-Rector for teaching of [University of L'Aquila](#) (UAQ), Italy. Prof Continenza is visiting us within the frame of the Erasmus+ programme. As a result of our collaboration with Professor Continenza a new joint interdisciplinary Master's double-degree program in Physics and Nanotechnology will be opened in the academic year 2020/21. Students of this 4-semester program will start their education in L'Aquila, where they will spend the first two semesters in the [Department of Physical and Chemical Sciences](#), and will continue their education at the [Faculty of Applied Physics and Mathematics](#) of [Gdańsk University of Technology](#). Upon successful completion of the program students will be awarded two diplomas: Master of Physics (granted by UAQ) and Master of Nanotechnology (granted by GUT).

Research Interests & Highlights

PhD at Northwestern University, Evanston (IL, USA) under the supervision of Prof. Arthur J. Freeman. She initially worked for private companies (Italtel (Milan), Italsiel, (Rome)) and then started her academic career at Università degli Studi dell'Aquila (Italy), where she is presently a Full professor in Condensed Matter Theory and serves as Vice-Rector for Teaching affairs.

She established at Università degli Studi dell'Aquila an active research group working in ab-initio calculations of different electronic related properties of real materials.

She has been member of the Editorial board of the Journal of Magnetism and Magnetic Materials and of the International Advisory Committee of the International Conference of Magnetism (ICM). She is presently Member of the International Advisory Board of the Korean Magnetism Society and of the Editorial Board of the Journal of Magnetism published by the Korean Magnetism Society; she is also assisting the EU commission in the proposal evaluations (Physics panel). Guest professor at the University of Vienna for PhD courses, she authored more than 150 papers and has been invited to many international conferences.

Her research activity is focused on ab-initio calculations of the electronic properties of real materials. She has been involved in different scientific fields:

- Semiconductor/semiconductor and metal/semiconductor interfaces: potential barrier and band lineups at heterojunctions and their dependence on a substrate (epitaxial strain), ordering direction and intrinsic polarization; possibility to tune ad-hoc electronic properties for device applications.
- Electronic and magnetic properties of magnetic semiconductors and their dependence on compositions and magnetic alignment
- Superconductivity: ab-initio study of electronic properties of several different compounds (high-temperature superconducting compounds, as well as conventional superconductors); effects of dopants, pressure, and substitutions on the electronic and superconducting properties. Implementation of the Density Functional Theory for the Superconducting state (SC-DFT) and applications to real conventional superconductors (MgB₂, H, Li, K, etc. under pressure).

Publications:

<https://www.scopus.com/authid/detail.uri?authorId=36836931400>

Abstract of the seminar:

In the seminar I will briefly review some the main ab-initio results obtained by the Condensed Matter Theory group at Università degli Studi dell'Aquila for different superconducting materials highlighting successes and shortcomings with emphasis on their structural, electronic and transport properties.

A brief review of Density Functional Theory for superconductors and its applications to real materials will be also presented.