

# Fabio Bernardini

## CURRICULUM VITÆ

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### Personal Informations

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Family name	Bernardini
Given name	Fabio
Date of Birth	September 29 <sup>th</sup> , 1966
Place of Birth	Roma (Italy)
Marital status	Single
Nationality	Italian
Address	Dipartimento di Fisica Università degli Studi di Cagliari Cittadella Universitaria I-09042 Monserrato (CA), Italy
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Home page	<a href="http://www.dsf.unica.it/~fabio">http://www.dsf.unica.it/~fabio</a>
Research interests	Computational Materials Science First Principles investigation of Semiconductors and Superconductors
Current position	Permanent position as Assistant Professor (Ricercatore universitario confermato) since January 2 <sup>nd</sup> , 2004. Italian scientific sector FIS-03 Physics of Matter, at the Facoltà di Scienze Matematiche, Fisiche, e Naturali of Università degli Studi di Cagliari.

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### Education and professional career

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20/07/1990	Degree in Physics, at the University of Rome (Italy), marks 110/110.
19/09/1994	Ph.D. in Physics at the University of Modena, (Italy).
15/05/1994 - 17/12/1995	Post-doc fellowship of the European Community (Human Capital Mobility project) at the Laboratory of Physics of the Helsinki University of Tech- nology, (Finland).
2/01/2004	Permanent position as Assistant Professor at the De- partment of Physics of the University of Cagliari, (Italy).

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## Research activity

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Fabio Bernardini has a wide background in first principles calculations. From its graduation in Rome to the present day he devoted its activity to the study of solid state properties using first-principles approach, focusing on : (i) chemisorption of atoms at semiconductor surfaces; (ii) formation of Schottky barriers at semiconductors-metal interfaces; (iii) semiconductors interfaces band offsets and thermodynamics; (iv) structural, electronic and thermodynamic properties of defects in semiconductors; (v) diffusion of atoms in crystalline matrices, (vi) extended defects in silicon carbide, (vii) dilute magnetic semiconductors, (viii) point defects in superconducting  $\text{MgB}_2$ . He is author (or co-author) of 55 papers and has received ten invitations to internationals conferences in the field of semiconductor physics. Among the achievement of his scientific production deserve a special attention the investigations made on the pyroelectric, piezoelectric and dielectric properties of III-V semiconducting nitrides and their alloys (AlInGaN), their consequences on nanostructured device performances made in collaboration with Rutgers University (USA), Walter Schottky Institute (Munich) and the Optoelectronic Laboratory at the Department of Engineering of the University of Rome. His present interests focus on the calculation of superconducting properties of solids from first principles methods, DFT approach to superconductivity (SC-DFT).

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## Teaching

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Since 2004: Full course on Solid state physics, Laurea in Materials Science.

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## Research management and organization

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2003-2004 Co-organizer of the 13<sup>th</sup> and 14<sup>th</sup> Computational Materials Science Workshop, Cagliari.

2006 Responsible of the project "Implementazione el metodo Nudget elastic band e Dimer nel package CMPTool" awarded by the CASPUR computational center (Rome).

1996 to date Referee for Physical Review Letters, Physical Review B, Journal of Applied Physics.

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# INVITED TALKS AND LECTURES

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## Invited lectures on behalf of foreign institutions

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- 1) **June 12<sup>nd</sup> 1998:** invited lecture on "*Relevance of Spontaneous Polarization in III-V Nitrides Nanostructures*", at the Departement de Recherche Fondamentale sur la Matiere Condensee, CEA/Grenoble, Francia.
- 2) **October 29<sup>th</sup> 1998:** two invited lectures on "*Spontaneous polarization in III-V nitrides nanostructures*", at the "*Groupe d'Etude des Semiconducteurs-CNRS*", Università di Montpellier, Francia.

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## Invited Talks

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- 1) **1997:** *VII Italian-Swiss Workshop on Computational Materials Science*, S. Margherita di Pula (Italy).
  - 2) **1998:** *LXXXIV Congresso Nazionale della Società Italiana di Fisica*, Salerno (Italy).
  - 3) **1999:** *Third International Conference on Nitride Semiconductors (ICNS-3)*, Montpellier (France).
  - 4) **1999:** *MRS Fall Meeting, Symposium on "GaN and Related Alloys"*. Boston (USA).
  - 5) **2000:** *Third International Symposium on Blue Laser and Light Emitting Diodes (ISBLLED-2000)*, Zeuthen/Berlin (Germany).
  - 6) **2001:** *28th Conference on the Physics of Chemistry of Semiconductors Interfaces. (PCSI-28)*, Lake Buena Vista, Florida (USA).
  - 7) **2001:** *International Workshop on Physics of Light-Matter Coupling in Nitrides (PLMCN-1)*, Pontificia Università San Tommaso *Angelicum* Roma (Italy).
  - 8) **2001:** *8-th International Workshop on Computational Electronics (IWCE-8)*, Beckman Institute, University of Illinois, Urbana (USA).
  - 9) **2002:** *International Conference on Numerical Simulation of Semiconductor Optoelectronic Devices (NUSOD-02)*, Swiss Federal Institute of Technology (ETH), Zürich, (Switzerland).
  - 10) **2007:** *42<sup>nd</sup> Workshop: Low Dimensional Dynamical Phenomena and Simulations*, E. Majorana conference center, Erice (Italy).
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