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## EDUCATION

- Born: October 30, 1965. Adria (Rovigo).
- High school: Liceo Scientifico “E. Majorana”, Mirano (Venezia, Italy) 1979-84.
- University: Department of Physics, University of Padova, Padova (Italy) 1984-89.
- Graduate studies: International School for Advanced Studies, Trieste (Italy) 1990-93.

## PREVIOUS POSITIONS

- Postdoctoral Positions: IRRMA (Institut Romand de Recherche Numérique en Physique des Matériaux) and Institut de Physique Appliquée (EPFL). Lausanne 1993-1997.
- Senior Researcher: IRRMA (Institut Romand de Recherche Numérique en Physique des Matériaux) and Institut de Physique Appliquée (EPFL). Lausanne 1998.
- Ricercatore a contratto (3+3): SISSA-ISAS, International School for Advanced Studies. Trieste 1999-2002.
- Presently Associated Professor: SISSA-ISAS, International School for Advanced Studies. Trieste 2002-.

## PUBLICATIONS

### Papers

1. A. Dal Corso, S. Baroni, R. Resta, and S. de Gironcoli, “*Ab – initio* calculation of phonon dispersions in II-VI semiconductors”, Phys. Rev. B **47**, 3588 (1993).
2. A. Dal Corso and E. Tosatti, “Face-dependent Hamaker constants and surface melting or non-melting of non-cubic crystals”, Phys. Rev. B **47**, 9742 (1993).
3. A. Dal Corso, R. Resta, and S. Baroni, “Non linear piezoelectricity in CdTe”, Phys. Rev. B **47**, 16252 (1993).
4. A. Dal Corso, S. Baroni and R. Resta, “Density-functional theory of the dielectric constant: gradient corrected calculation for silicon”, Phys. Rev. B **49**, 5323 (1994).

5. A. Dal Corso and R. Resta, "Density-functional theory of macroscopic stress: Gradient-corrected calculations for crystalline Se", *Phys. Rev. B* **50**, 4327 (1994).
6. A. Dal Corso and F. Mauri, "Wannier and Bloch orbital computation of nonlinear susceptibility", *Phys. Rev. B (Rapid Communication)* **50**, 5756 (1994).
7. A. Dal Corso, M. Posternak, R. Resta and A. Baldereschi, "Ab-initio study of piezoelectricity in ZnO", *Phys. Rev. B* **50**, 10715 (1994).
8. A. Dal Corso, A. Pasquarello, A. Baldereschi, and R. Car, "Generalized Gradient approximation to density functional theory: a comparative study for atoms and solids", *Phys. Rev. B* **53**, 1180 (1996).
9. A. Dal Corso, F. Mauri, and A. Rubio, "Density functional theory of nonlinear optical susceptibility: application to cubic semiconductors", *Phys. Rev. B* **53**, 15638 (1996).
10. A. Dal Corso, A. Pasquarello, and A. Baldereschi, "Density functional perturbation theory with ultrasoft pseudopotentials." *Phys. Rev. B (Rapid Communication)* **56**, R11369 (1997).
11. P. Fernández, A. Dal Corso, F. Mauri, and A. Baldereschi, "First-Principle Wannier Orbitals of silicon and gallium arsenide" *Phys. Rev. B (Rapid Communication)* **55**, 1909 (1997).
12. P. Fernández, A. Dal Corso, and A. Baldereschi, "Polarized Wannier functions: calculation of the dielectric properties of silicon and gallium arsenide", *Phys. Rev. B (Rapid Communication)* **58**, R7480 (1998).
13. C. Massobrio, A. Pasquarello, and A. Dal Corso, "Structural and electronic properties of small  $Cu_n$  clusters using generalized-gradient approximations within density functional theory" *Jour. of Chem. Phys.* **109**, 6626 (1998).
14. J.A. Torres, E. Tosatti, A. Dal Corso, F. Ercolessi, J.J. Kohanoff, F. Di Tolla, and J.M. Soler, "The puzzling stability of monatomic gold wires", *Surface Science Letters* **426**, L441 (1999).
15. F. Mauri and A. Dal Corso, "Vibrational properties of hydrogenated amorphous carbon" *Appl. Phys. Lett.* **75**, 644 (1999).
16. R. Lazzari, N. Vast, J.M. Besson, S. Baroni, and A. Dal Corso, "Atomic structure and vibrational properties of icosahedral  $B_4C$  boron carbide". *Phys. Rev. Lett.* **83**, 3230 (1999).
17. F. Favot and A. Dal Corso, "Phonon dispersions: Performance of the GGA approximation", *Phys. Rev. B.* **60**, 11427 (1999).
18. V. Musolino, A. Dal Corso, and A. Selloni, "Initial stages of growth of copper on MgO(100): A first principles study". *Phys. Rev. Lett.* **83**, 2761 (1999).
19. M. Magagnini, P. Giannozzi, and A. Dal Corso, "Microscopic structure of substitutional Aluminum defect in  $\alpha$ -quartz". *Phys. Rev. B* **61**, 2621 (2000).
20. A. Dal Corso and S. de Gironcoli, "Ab-initio phonon dispersions of Fe and Ni" *Phys. Rev. B* **62**, 273 (2000).

21. F. Favot, A. Dal Corso and A. Baldereschi, "Adsorption geometry of Benzene on Pd(110): Results of first-principles calculations". *Europhys. Lett.* **52**, 698 (2000).
22. S. Baroni, S. de Gironcoli, A. Dal Corso, and P. Giannozzi "Phonons and related properties of extended systems from density functional perturbation theory" *Rev. Mod. Phys.* **73**, 515 (2001).
23. F. Favot, A. Dal Corso and A. Baldereschi, "CO adsorbed on Cu(001): a comparison between LDA and PBE-GGA" *Jour. of Chem. Phys.* **114**, 483 (2001).
24. F. Favot, A. Dal Corso and A. Baldereschi, "Ab-initio study of CO adsorption on Ni(110): effects on surface magnetism at low coverage" *Phys. Rev. B* **63**, 115416 (2001).
25. E. Tosatti, S. Prestipino, S. Koestlmeier, A. Dal Corso, and F. Di Tolla, "String tension, Stability, and Electronic Structure of Magic Tip-Suspended Nanowires", *Science* **291**, 288 (2001).
26. P. Umari, A. Pasquarello and A. Dal Corso, "Raman scattering intensities in  $\alpha$ -quartz: A first-principles investigation", *Phys. Rev. B* **63**, 094305 (2001).
27. L. Savio, L. Vattuone, M. Rocca, V. De Renzi, S. Gardonio, C. Mariani, U. del Pennino, G. Cipriani, A. Dal Corso, S. Baroni "Substrate reconstruction and electronic surface states: Ag(001)", *Surf. Sci.* **486**, 65 (2001).
28. N. Manini, A. Dal Corso, M. Fabrizio, and E. Tosatti, "Electron-vibration coupling constants in positively charged fullerene", *Philos. Mag. B* **73**, 793 (2001).
29. A. Dal Corso "Density functional theory with ultrasoft pseudopotentials" *Phys. Rev. B* **64**, 235118 (2001).
30. G. Cipriani, D. Loffreda, A. Dal Corso, S. de Gironcoli, and S. Baroni, "Adsorption of atomic oxygen on Ag(001): a study based on density functional theory" *Surf. Sci.* **501**, 182 (2002).
31. N. Manini, G. Santoro, A. Dal Corso, E. Tosatti, "Sensitivity of the Mott transition to non-cubic splitting of the orbital degeneracy: application to  $\text{NH}_3\text{K}_3\text{C}_{60}$ ", *Phys. Rev. B* **66**, 115107 (2002).
32. A. Kokalj, A. Dal Corso, S. de Gironcoli, and S. Baroni, "The interaction of ethylene with perfect and defective Ag(001) surfaces", *Jour. Phys. Chem. B* **106**, 9839 (2002).
33. Martin Lüders, Andrea Bordoni, Nicola Manini, Andrea Dal Corso, Michele Fabrizio, and Erio Tosatti, "Coulomb couplings in positively charged fullerene" To appear in *Philos. Mag. B*.
34. David Loffreda, Andrea Dal Corso, Stefano Baroni, Letizia Savio, Luca Vattuone, and Mario Rocca "Oxygen vibrations in O@Ag(001)" Submitted to *Surf. Sci.*
35. Matteo Cococcioni, Andrea Dal Corso, Stefano de Gironcoli, "Structural, Electronic and Magnetic Properties of  $\text{Fe}_2\text{SiO}_4$ , Fayalite: comparison of LDA and GGA results" Submitted to *Phys. Rev. B*.

#### Conference proceedings, Reply, Errata

1. A. Dal Corso and A.C. Levi, "Zener Tunneling in the Amirav-Cardillo effect", *Il Vuoto* **21**, 218 (1992).

2. A. Dal Corso and A. Baldereschi, "Ab-initio study of the structural and electronic properties of adsorbates: CO on Cu(001)" *Surface Review and Letters* **4**, 885 (1997).
3. C. Massobrio, A. Pasquarello, and A. Dal Corso, "A first principle study of small  $\text{Cu}_n$  clusters based on local density and generalized-gradient approximations to density functional theory" *Computational Material Science* **10**, 463 (1998). Proceedings of the Symposium "Computational Issues in Material Science", EMRS, Strasbourg, June 1997.
4. A. Dal Corso, A. Baldereschi, "Ab-Initio study of the vibrational properties of adsorbates: CO on Cu(001)" Proceedings of the VII Italian-Swiss workshop on Computational Condensed Matter Physics. Cagliari (1997).
5. F. Favot, A. Dal Corso, and A. Baldereschi, "ab-initio study of the  $c(4 \times 2)$ -benzene structure on Pd(110)", Proceedings of the Sixth International Conference on the Structure of Surfaces, Vancouver, Canada, July 26-30, 1999. *Surface Review and Letters*, **6**, 903 (1999).
6. F. Di Tolla, A. Dal Corso, J. A. Torres, and E. Tosatti, "Electronic properties of Ultra-Thin Aluminum nanowires". Paper presented at the 18th European Conference on Surface Science Vienna, Austria, September 21-24, 1999. *Surface Science* **454-456**, 947 (2000).
7. S. Cozzini and A. Dal Corso, "Optimization of a plane waves self consistent code (PWSCF) on SGI platforms", Paper presented at the 5th European Cray/SGI MPP-Workshop. Bologna, September 1999.
8. N. Vast, J. Besson, S. Baroni, and A. Dal Corso, "Atomic structure and vibrational properties of icosahedral alpha-boron and  $\text{B}_4\text{C}$  boron carbide" *Computational Material Science* **17**, 127-132 (2000).
9. R. Lazzari, N. Vast, J.M. Besson, S. Baroni, and A. Dal Corso, "Atomic structure and vibrational properties of icosahedral  $\text{B}_4\text{C}$  boron carbide" (vol. 83, pag. 3230, 1999) *Phys. Rev. Lett.* **85**, 4194 (2000).
10. J.A. Torres, E. Tosatti, A. Dal Corso, F. Ercolessi, J.J. Kohanoff, F. Di Tolla, and J.M. Soler, Reply to "The puzzling stability of monoatomic gold wire is the result of small fluctuations" *Surface Science* **463**, 213 (2000).
11. A. Kokalj, A. Dal Corso, S. de Gironcoli, and S. Baroni, "Adsorption of ethylene on the Ag(001) surface" *Surf. Sci.* **507-510**, 62 (2002).
12. A. Smogunov, A. Dal Corso, and E. Tosatti, "Selective d-state Conduction Blocking in Nickel Nanocontacts" *Surf. Sci.* **507-510**, 609 (2002).
13. A. Smogunov, A. Dal Corso, and E. Tosatti, "Complex band structure with ultrasoft pseudopotentials: fcc Ni and Ni nanowire" *Surf. Sci.* Submitted.
14. F. Picaud, A. Dal Corso, and E. Tosatti, "Phonons Softening in Tip-Stretched Monatomic Nanowires" *Surf. Sci.* In press.
15. A. Kokalj, A. Dal Corso, S. de Gironcoli, and S. Baroni, "Co-adsorption of ethylene and oxygen on the Ag(001) surface" *Surf. Sci.* Submitted.

## **Books chapters**

1. A. Dal Corso “Reciprocal space integration and special points”, in ‘Quantum-Mechanical Ab-initio calculation of the Properties of Crystalline Materials’, ‘Lecture Notes in Chemistry **67**’ C. Pisani (Ed.) (1996, Springer, Berlin).
2. A. Dal Corso “A Pseudopotential Plane Waves Program (PWSCF) and some Case Studies”, in ‘Quantum-Mechanical Ab-initio calculation of the Properties of Crystalline Materials’, ‘Lecture Notes in Chemistry **67**’ C. Pisani (Ed.) (1996, Springer, Berlin).

## **OTHER ACTIVITIES**

1. Coorganizer of a CECAM workshop on “Wannier functions and other localized electronic wavefunctions” (1999) and two ICTP Colleges (2001,2003) on “Numerical Methods in Electronic Structure Theory.”
2. Referee of a few international journals including Physical Review B, Physical Review Letters and Surface Science.