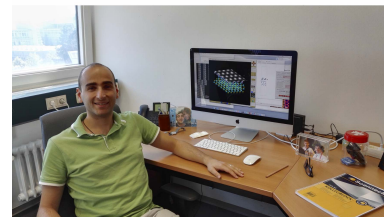


Europass Curriculum Vitae



Personal information

Surname(s) / First name(s) **Dr. Di Sante Domenico**
Address(es) Institut für Theoretische Physik und Astrophysik, Universität Würzburg, Am Hubland, 97074 Wuerzburg - Germany
Email(s) domenico.disante@physik.uni-wuerzburg.de
Nationality(-ies) Italy
Date of birth 08 April 1987
Gender Male

Education

Date Since 1 December 2016
Degree **Assistant Professor (Akademischer Rat)**
Supervisor Prof. Dr. Ronny Thomale
University Institut für Theoretische Physik und Astrophysik, Universität Würzburg

Date 17 February 2016 - 30 November 2016
Degree **PostDOC Fellowship**
Supervisor Prof. Dr. Giorgio Sangiovanni and Prof. Dr. Ronny Thomale
University Institut für Theoretische Physik und Astrophysik, Universität Würzburg
Project ToCoTronics - Topological and Correlated Electronics at Surfaces and Interfaces (SFB 1170, Principal Investigator: Prof. Dr. L.W. Molenkamp)

Date 15 April 2015
Degree **PhD degree**
Thesis Modeling Cross Coupling Interactions in Advanced Materials. Spin-Orbit, Multiferroicity, Disorder and Electron-Phonon Interaction.
Supervisors Dr. Silvia Picozzi and Prof. Sergio Ciuchi
University Department of Physical and Chemical Sciences, University of L'Aquila

Date 17 November 2014 - 16 February 2016
PostDOC Fellowship with research project: "First-Principles Study of Magnetic Anisotropy Energy in Antiferromagnets"
CNR-SPIN (Dr. A. Stroppa)

Date 02 November 2011
Degree **First place in the list of admission to the PhD course in Physics**
University Physics Department, University of L'Aquila

Date	10 October - 09 November 2011
	Fellowship with research project: "Studio teorico-computazionale dell'accoppiamento magnetoelettrico all'interfaccia Fe/BaTiO₃ con funzionali avanzati di scambio e correlazione"
	CNR-SPIN (Dr. S. Picozzi)
Date	21 July 2011
Degree	Master Degree in Physics
Courses	Physics of Matter, Solid State Physics, Computational Methods in Condensed Matter, Magnetic Properties of Matter, Physics of non-Linear Systems, Spectroscopy, Statistical Mechanics, Nuclear Physics, Theoretical Physics
University	University of L'Aquila
Final Mark	110/110 cum laude
Date	07 October 2009
Degree	Bachelor Degree in Physics
Courses	Mechanics, Thermodynamics, Electromagnetism, Electrodynamics, Quantum Mechanics, Mathematical Methods, Electronics ed Digital Electronics, Mechanics and Dynamics of Fluids
University	University of L'Aquila
Final Mark	110/110
Date	July 2006
Degree	High-School Diploma in Sciences
School	Liceo Scientifico A. Einstein (Teramo)
Final Mark	110/110

Teaching

Date	Academic Year 2016/2017, Winter semester
Course	Computational Material Science
Where	Wuerzburg University
Date	Academic Year 2013/2014, First semester
Course	Teaching (Exercises): "Quantum Mechanics" and "Mathematical Methods in Physics" Courses
Where	Department of Physical and Chemical Sciences, University of L'Aquila

Bibliometric Indicators

h-index	11 [Web of Science], 13 [Google Scholar]
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List of Publications

	Articles
30	<u>D. Di Sante</u> , S. Fratini, V. Dobrosavljević and S. Ciuchi, <i>Disorder-driven metal-insulator transitions in deformable lattices</i> , Phys. Rev. Lett. 118 , 036602 (2017)
29	V.V. Volobuev, P.S. Mandal, M. Galicka, O. Caha, J. Sánchez-Barriga, <u>D. Di Sante</u> , A. Varykhalov, A. Khair, S. Picozzi, G. Bauer, P. Kacman, R. Buczko, O. Rader and G. Springholz, <i>Giant Rashba Splitting in Pb_{1-x}Sn_xTe (111) Topological Crystalline Insulator Films Controlled by Bi Doping in the Bulk</i> , Adv. Mater. 29 , 1604185 (2017)

- 28 P. Sessi, D. Di Sante, A. Szczerbakow, F. Glott, S. Wilfert, H. Schmidt, T. Bathon, P. Dziawa, M. Greiter, T. Neupert, G. Sangiovanni, T. Story, R. Thomale, M. Bode, *Robust spin-polarized midgap states at step edges of topological crystalline insulators*, Science **354**, 1269 (2016)
- 27 E. Bruyer, D. Di Sante, P. Barone, A. Stroppa, M.-H. Whangbo and S. Picozzi, *Possibility of combining ferroelectricity and Rashba-like spin splitting in monolayers of the 1T-type transition-metal dichalcogenides MX_2 ($M = Mo, W$; $X = S, Se, Te$)*, Phys. Rev. B **94**, 195402 (2016)
- 26 W.-P. Zhao, C. Shi, A. Stroppa, D. Di Sante, F. Cimpoesu and W. Zhang, *Lone-Pair-Electron-Driven Ionic Displacements in a Ferroelectric Metal–Organic Hybrid*, Inorg. Chem. **55**, 10337 (2016)
- 25 D. Di Sante, P. Barone, A. Stroppa, K. F. Garrity, D. Vanderbilt and S. Picozzi, *Intertwined Rashba, Dirac and Weyl Fermions in Hexagonal Hyperferroelectrics*, Phys. Rev. Lett. **116**, 076401 (2016)
- 24 A. Stroppa, P. Barone, D. Di Sante, M. Cuoco, S. Picozzi and M.-H. Whangbo, *Analogy between Jahn-Teller distortion and Rashba spin splitting, and Jahn-Teller counterpart of spin texture*, Int. J. Quantum Chem. **116**, 1442 (2016)
- 23 P.K. Das, D. Di Sante, I. Vobornik, J. Fujii, T. Okuda, E. Bruyer, A. Gyenis, B.E. Feldman, J. Tao, R. Ciancio, G. Rossi, M.N. Ali, S. Picozzi, A. Yadzani, G. Panaccione and R.J. Cava, *Layer-dependent quantum cooperation of electron and hole states in the anomalous semimetal WTe_2* , Nat. Commun. **7**, 11355 (2016) (Correction)
- 22 P.K. Das, D. Di Sante, I. Vobornik, J. Fujii, T. Okuda, E. Bruyer, A. Gyenis, B.E. Feldman, J. Tao, R. Ciancio, G. Rossi, M.N. Ali, S. Picozzi, A. Yadzani, G. Panaccione and R.J. Cava, *Layer-dependent quantum cooperation of electron and hole states in the anomalous semimetal WTe_2* , Nat. Commun. **7**, 10847 (2016)
- 21 M. Ptak, M. Maczka, A. Gagor, A. Sieradzki, A. Stroppa, D. Di Sante, J.M. Perez-Mato and L. Macalik, *Experimental and theoretical studies of structural phase transition in a novel polar perovskite-like $[C_2H_5NH_3][Na_{0.5}Fe_{0.5}(HCOO)_3]$ formate*, Dalton Transactions **45**, 2574 (2016)
- 20 M. Liebmann, C. Rinaldi, D. Di Sante, J. Kellner, C. Pauly, R.N. Wang, J.E. Boschker, A. Giussani, S. Bertoli, M. Cantoni, L. Baldrati, M. Asa, I. Vobornik, G. Panaccione, D. Marchenko, J. Sánchez-Barriga, O. Rader, R. Calarco, S. Picozzi, R. Bertacco, M. Morgenstern, *Giant Rashba-Type Spin Splitting in Ferroelectric $GeTe(111)$* , Adv. Mater. **28**, 560 (2016)
- 19 S. Ghosh, D. Di Sante and A. Stroppa, *Strain Tuning of Ferroelectric Polarization in Hybrid Organic Inorganic Perovskite Compounds*, J. Phys. Chem. Lett. **6**, 4553 (2015)
- 18 Y.F. Nie, D. Di Sante, S. Chatterjee, P.D.C. King, M. Uchida, S. Ciuchi, D.G. Schlom, and K.M. Shen, *Formation and Observation of a Quasi-Two-Dimensional $d(xy)$ Electron Liquid in Epitaxially Stabilized $Sr_{2-x}La_xTiO_4$ Thin Films*, Phys. Rev. Lett. **115**, 096405 (2015)
- 17 Y.Liu, C.Zhang, X. Yuan, T. Lei, C. Wang, D. Di Sante, A. Narayan, L. He, S. Picozzi, S. Sanvito, R. Che and F. Xiu, *Gate-tunable quantum oscillations in ambipolar Cd_3As_2 thin films*, NPG Asia Materials **7**, e221 (2015)
- 16 D. Di Sante, P. Barone, E. Plekhanov, S. Ciuchi and S. Picozzi, *Robustness against Disorder of Relativistic Spectral Properties in Chalcogenide Alloys*, Sci. Rep. **5**, 11285 (2015).

- 15 D. Di Sante, A. Stroppa, P. Barone, M.-H. Whangbo, S., *Emergence of ferroelectricity and spin-valley properties in two-dimensional honeycomb binary compounds*, Phys. Rev. B **91**, 161401(R) (2015) (Editors' Suggestion).
- 14 A. Stroppa, D. Di Sante, P. Barone, M. Bokdam, G. Kresse, C. Franchini, M.-H. Whangbo and S. Picozzi, *Highly tunable ferroelectric polarization and its interplay with spin-orbit coupling in tin iodide perovskites*, Nature Communications **5**, 5900 (2014).
- 13 R. Wang, J. Boschker, E. Bruyer, D. Di Sante, S. Picozzi, K. Perumal, A. Giussani, H. Riechert and R. Calarco, *Towards Truly Single Crystalline GeTe Films: The Relevance of the Substrate Surface*, J. Phys. Chem. C **118**, 29724 (2014).
- 12 A. Narayan, D. Di Sante, S. Picozzi and S. Sanvito, *Topological tuning in three-dimensional Dirac semimetals*, Phys. Rev. Lett. **113**, 256403 (2014).
- 11 E. Plekhanov, P. Barone, D. Di Sante and S. Picozzi, *Engineering relativistic effects in ferroelectric SnTe*, Phys. Rev. B **90**, 161108(R) (2014).
- 10 D. Di Sante and S. Ciuchi, *Strong interplay between electron-phonon interaction and disorder in low doped systems*, Phys. Rev. B **90**, 075111 (2014).
- 9 P. Barone, D. Di Sante and S. Picozzi, *Improper ferroelectricity at CaTiO₃ and CaMnO₃ Twin Walls*, Phys. Rev. B, **89**, 144104 (2014).
- 8 D. Di Sante, A. Stroppa, P. Jain and S. Picozzi, *Tuning the ferroelectric polarization in a multiferroic Metal-Organic Framework*, J. Am. Chem. Soc., **135**, 18126 (2013).
- 7 P. Barone, D. Di Sante and S. Picozzi, *Strain engineering of topological properties in lead-salt semiconductors*, Phys. Status Solidi RRL, **7**, No. 12, 1102-1106 (2013).
- 6 P. Barone, T. Rauch, D. Di Sante, J. Henk, I. Mertig and S. Picozzi, *Pressure-induced topological phase transitions in rocksalt chalcogenides*, Phys. Rev. B, **88**, 045207 (2013).
- 5 D. Di Sante, K. Yamauchi and S. Picozzi, *Beyond Standard Local Density Approximation in the Study of Magnetoelectric Effects in Fe/BaTiO₃ and Co/BaTiO₃ Multilayers*, J. Phys.: Condens. Matter, **25**, 066001 (2013).
- 4 D. Di Sante, P. Barone, R. Bertacco and S. Picozzi, *Electric Control of Giant Rashba Effect in Bulk GeTe*, Adv. Mater. **25**, 3625 (2013) (Correction).
- 3 D. Di Sante, P. Barone, R. Bertacco and S. Picozzi, *Electric Control of Giant Rashba Effect in Bulk GeTe*, Adv. Mater. **25**, 509 (2013).
- 2 D. Di Sante, A. Stroppa and S. Picozzi, *Structural, electronic and ferroelectric properties of Croconic Acid crystal: a DFT study*, Phys. Chem. Chem. Phys., **14**, 14673 (2012).
- 1 A. Stroppa, D. Di Sante, S. Horiuchi, Y. Tokura, D. Vanderbilt and S. Picozzi, *Polar distortions in hydrogen-bonded organic ferroelectrics*, Phys. Rev. B **84**, 014101 (2011).

Books and Chapters

- C E. S. Tasci, A. Stroppa, D. Di Sante, G. Giovannetti, S. Picozzi and J. M. Perez-Mato, *Research Horizons of Nanosystems Structure, Properties and Interactions. Chapter 11: The How-To Guide to Computational Crystallography*, Apple Academic Press, <http://www.appleacademicpress.com/title.php?id=9781926895901>

B *Density Functional Theory and Group Theoretical Analysis in the Study of Hydrogen Bonded Organic Ferroelectrics.* (Master Degree)
http://dsfc.univaq.it/ddisante/files/pdf/master_thesis.pdf

A *Studio delle Proprietà Elettroniche di Ferroelectrici Organici.* (Bachelor Degree)
http://dsfc.univaq.it/ddisante/files/pdf/tesi_triennale.pdf

Refereeing

Referee for **Physical Review Letters, Physical Review B, Physical Review X, Journal of American Chemical Society** and **New Journal of Physics**

Conferences

Date From 19 to 21 September 2016

Degree **SuperFOx 2016**

Where Torino, Italy

Date From 22 to 26 June 2016

Degree **International Conference on Computational Nanoscience and New Energy Materials, CNNEM-2016**

Where Shanghai, China

Date 17 May 2016

Degree **Strongly disordered systems in condensed matter and cold atoms**

Where Grenoble, France

Date From 6 to 11 March 2016

Degree **DPG Conference 2016**

Where Regensburg, Germany

Date From 6 to 10 September 2015

Degree Ψ_k **Conference 2015**

Where San Sebastian, Spain

Date From 17 to 19 February 2015

Degree **Partecipation to MAGNET 2015**

Where CNR Research Area, Bologna

Date From 24 to 26 September 2014

Degree **Partecipation to SuperFox Conference 2014**

Where La Sapienza University, Rome

Date From 18 to 20 September 2013

Degree **Partecipation to DISCOR 13 (Disorder and Correlations in Quantum Systems)**

Topics Low-dimensional Superconductors, Strongly Correlated Electronic Systems, Classical and Quantum Glassy Behavior, Cold Atoms, Spintronics, Quantum Information.

Where La Sapienza University, Rome

Date From 29 July to 2 August 2013

Degree **Partecipation to CORPES 2013 (Strong correlations and angle-resolved photoemission spectroscopy)**

Topics Spectroscopy Investigation on Correlated Materials, Many-Body Theory of Correlated Electrons in Solids, The Photoemission Process, Advances in Photoemission Techniques, Relations to Other Photon-Based Techniques.

Where	Hamburg (Germany)
Date	From 07 to 10 May 2012
Degree	Participation to Ψ_k Research Conference on Computational Oxide Spintronics
Topics	Multiferroics and magnetoelectrics, DMFT + electronic correlation, Oxides-based interfaces, Beyond-LDA functionals, Topological insulators and Berry phases, Superconductivity and Interplay with magnetism, Defects in oxides and high-k materials, Oxides tunnel junctions: transport and magnetoelectric effects
Where	Cranage Hall, UK
Date	23 March 2012
Degree	Participation to Electronic Ferroelectricity - ELF 2012
Topics	Novel complex materials, Microscopic mechanisms for multiferroicity, Magnetoelectric effects, First-principles studies and Model Hamiltonian approaches to electronic ferroelectrics, Characterization techniques, Symmetry analysis
Where	Vietri sul Mare, Salerno
Date	From 20 to 22 March 2012
Degree	Participation to MAMA-ProTheo - Multifunctional Advanced Materials: Probe and Theory
Topics	Functional properties of quantum magnets and frustrated magnets, Ferroic and multiferroic systems, Correlated electrons in nanostructures, Interface physics in complex oxide heterostructures, Topological materials, Hybrid systems: Interfacing organic and inorganic materials
Where	Vietri sul Mare, Salerno
Schools	
Date	From 25 February to 8 March 2013
Degree	Participation to European School on Magnetism ESM2013
Topics	Basic concepts, Magnetism in matter, Temperature effects, Magnetic characterization, Magnetization processes, Functional materials, Devices, Spintronic, Industry perspectives
Where	Cargèse, Corsic (France)
Date	From 29 January to 03 February 2012
Degree	Participation to the 5th European School on Multiferroics ESMF5 2012
Topics	Bulk Synthesis, Theory of Domain Walls, Properties from Photoemission, Electronic Structure Theory, Properties with Raman, Properties from Optics, Properties from Neutrons
University	ETH Zurich
Where	Ascona (Switzerland)
Date	From 10 to 15 July 2011
Degree	Participation to Ψ_k/CECAM/CCP9 Biennial Graduate School in Electronic-Structure Methods
Topics	Density Functional Perturbation Theory, Linear Scaling, LMTO, Quantum Monte Carlo
University	Oxford University, Materials Department
Date	July 2005
Degree	Participation to Gran Sasso-Princeton Summer School
University	Princeton University, Physics Department

Talks

Date	25 June 2016
Title	Layer-dependent quantum cooperation of electron and hole states in the anomalous semimetal WTe_2
Where	CNNEM-2016, Shanghai, China
Date	23 June 2016
Title	Emergence of ferroelectricity and spin-valley properties in two-dimensional honeycomb binary compounds
Where	CNNEM-2016, Shanghai, China
Date	17 May 2016
Title	Strong Interplay between Disorder and Electron-Phonon Coupling. A Material Science Perspective
Where	Workshop on Strongly Disordered Systems, Grenoble, France
Date	9 March 2016
Title	Ferroelectric Polarization and its Interplay with Spin-Orbit Coupling in Halide Perovskites
Where	DPG Conference, Regensburg, Germany
Date	10 September 2015
Title	Topological Tuning in Three Dimensional Dirac Semimetals
Where	Ψ_k Conference 2015, San Sebastian, Spain
Date	8 September 2015
Title	Emergence of ferroelectricity and spin-valley properties in two-dimensional honeycomb binary compounds
Where	Ψ_k Conference 2015, San Sebastian, Spain
Date	19 February 2015
Title	Topological Tuning in Three Dimensional Dirac Semimetals
Where	Conference MAGNET 2015, Bologna
Date	9 October 2014
Title	Strong interplay between electron-phonon interaction and disorder in low doped systems
Where	Würzburg University, Germany (invited by Prof. G. Sangiovanni)
Date	24 September 2014
Title	Engineering Topological Properties in rocksalt chalcogenides and the Role of Disorder in the Spectral Features of Topological Crystalline Insulator Alloys
Where	SuperFox Conference 2014, University La Sapienza, Rome
Date	7 May 2014
Title	Engineering Topological Properties in rocksalt chalcogenides and the Role of Disorder in the Spectral Features of Topological Crystalline Insulator Alloys
Where	Forschungszentrum Jülich, Germany (invited by Prof. S. Blügel)
Date	21 September 2012
Title	Electric Control of Giant Rashba Effect in Bulk GeTe
Where	Trinity College, Dublin (invited by Prof. S. Sanvito)

Posters

- Date From 29 July to 2 August 2013
Authors D. Di Sante, Y. Nie, K. Shen and S. Ciuchi
Title **Interplay between static disorder and dynamic phonon displacement in a weak correlated parent of cuprates**
Conference CORPES 2013, Hamburg (Germany)
- Date From 25 February to 8 March 2013
Authors D. Di Sante, P. Barone, R. Bertacco and S. Picozzi
Title **Electric Control of Giant Rashba Effect in Bulk GeTe**
Conference European School on Magnetism ESM2013, Cargèse, Corsic (France)
- Date From 07 to 10 May 2012
Authors D. Di Sante, K. Yamauchi and S. Picozzi
Title **Beyond Standard Local Density Approximation in the Study of Magnetoelectric Effects in Fe/BaTiO₃ and Co/BaTiO₃ Multilayers**
Conference Ψ_k Research Conference on Computational Oxide Spintronics, Cranage Hall, UK
- Date From 20 to 22 March 2012
Authors D. Di Sante, P. Barone, R. Bertacco and S. Picozzi
Title **Electric Control of Giant Rashba Effect in Bulk GeTe**
Conference MAMA-ProTheo - Multifunctional Advanced Materials: Probe and Theory, Vietri sul Mare (Italy)
- Date From 20 to 22 March 2012
Authors D. Di Sante, K. Yamauchi and S. Picozzi
Title **Beyond Standard Local Density Approximation in the Study of Magnetoelectric Effects in Fe/BaTiO₃ and Co/BaTiO₃ Multilayers**
Conference MAMA-ProTheo - Multifunctional Advanced Materials: Probe and Theory, Vietri sul Mare (Italy)
- Date From 29 January to 03 February 2012
Authors D. Di Sante, K. Yamauchi and S. Picozzi
Title **Beyond Standard Local Density Approximation in the Study of Magnetoelectric Effects in Fe/BaTiO₃ and Co/BaTiO₃ Multilayers**
Conference 5th European School on Multiferroics ESMF5 2012, Ascona (Switzerland)
- Date From 10 to 15 July 2011
Authors A. Stroppa, D. Di Sante, S. Horiuchi, Y. Tokura, D. Vanderbilt and S. Picozzi
Title **Polar distortions in hydrogen-bonded organic ferroelectrics**
Conference Ψ_k /CECAM/CCP9 Biennial Graduate School in Electronic-Structure Methods, Oxford (UK)

Short-Term Visits

- Date From 7 to 12 June 2015
Prof. C. Franchini Group, Vienna University, Austria
- Date From 6 October to 10 October 2014
Prof. G. Sangiovanni Group, Würzburg University, Germany
- Date From 28 April to 25 March 2014
Prof. S. Blügel's Group, Forschungszentrum Jülich, Germany

Date | From 17 September to 15 October 2012
Prof. S. Sanvito's Computational Spintronics Group, Trinity College, Dublin

Languages

Italian | Mother tongue
English | Good level, both written and oral