Andrej Mesaros — Curriculum Vitae

December 12, 2021

Laboratoire de Physique des Solides
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Gender:	Male
Date of Birth:	February 16th 1982.
Citizenship:	Hungarian, Serbian

Education and Research Experience

Oct 2018 -	**Laboratoire de Physique des Solides, Université Paris-Sud, Orsay**, Chargé de recherche at CNRS
May 2017 - Oct 2018	**LPS Orsay**, CNRS CDD researcher with Prof. Pascal Simon
Sep 2014 - April 2017	**Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca NY** Postdoctoral researcher with Prof. Eun-Ah Kim
May 2011 - Sep 2014	**Physics Department, Boston College, Chestnut Hill MA** Postdoctoral researcher with Prof. Ying Ran
Sep 2006 - Apr 2011	**Lorentz Institute for Theoretical Physics, Leiden University, The Netherlands** PhD student with Prof. Jan Zaanen. Graduated on the 6th of Oct 2010. Thesis: Dislocations in Stripes and Lattice Dirac Fermions
Oct 2001- Jul 2006	**Faculty of Physics, Belgrade University, Serbia** Undergraduate and Master degree in theoretical physics. Diploma thesis advisor Prof. Milan Damnjanović

Mentoring and Teaching Experience

Oct 2019 -	Supervision of PhD (50%) Jean-Baptiste TOUCHAIS, LPS Orsay
Oct 2017 -	Supervision of PhD (50%) Maxime GARNIER, LPS Orsay
2020	Supervision of M2 internship (50%) Mateo ULDEMOLINS NIVELA, LPS Orsay
2019	Supervision of M1 internship (100%) Ramal AFROSE, LPS Orsay
	Supervision of M1 internship (50%) Mateo ULDEMOLINS NIVELA, LPS Orsay
	Supervision of M1 internship (50%) J. J. Arfor HOUWMAN, LPS Orsay
	Supervision of M2 internship (50%) Jean-Baptiste TOUCHAIS, LPS Orsay
2017	Supervision of M2 internship (50%) Ana Marija NEDIĆ, LPS Orsay
	Supervision of M1 internship (50%) Donald GOURY, LPS Orsay
2011 - 2014	Supervision (daily) of doctorate student Bing YE, Boston College, MA
2007 - 2009	Teaching assistant for master courses at Leiden University, The Netherlands: *Advanced Theory of Quantum Mechanics*, by Prof. Peter Denteneer, *Theory of Condensed Matter*, by Prof. Jan Zaanen and by Dr. David Santiago

Outreach

Workshop for Teachers in Elementary and Middle Schools, *Liquid Crystals*, March 2015, New York. Developed *Liquid Crystals Kit* for CCMR Lending library.

Administration

Sep 2019 -	Organizer of "Séminaire de la Théorie de la Matière Condensée sur le Plateau" theory seminar at LPS Orsay (since March held online)
May 2019	Member of "Commission Informatique" at LPS Orsay
March 2019	Organizer of restructuring and expansion of computer cluster at LPS Orsay

Awards and Honors

Jan 2013	Excellence in Reviewing Award, *Annals of Physics*
Dec 2004	Award and a year scholarship of *Dr. Djordje Živanović* fund for the two best students of Faculty of Physics, Belgrade
Dec 2003	Scholarship of Royal Norwegian Embassy in Belgrade, *15 Million Dinars for the Best 500 Students in Serbia and Montenegro*
2003 - 2006	The scholarship of the Foundation for Development of Youth in Science and Arts, Belgrade, Serbia

Research Activity

Recent Talks at International Conferences

2019 **1. Invited:** *Excitations due to defects in topological superconductors*,
Superstripes conference, Ischia, Italy

2018 **1. Invited:** *Excitations due to defects in topological superconductors*,
New Platforms for Topological Superconductivity with Magnetic Atoms, MPI PKS Dresden, Germany

2. Invited: *In-gap excitations due to defects in topological superconductor with spin-orbit coupling*,
S-hybrids COST workshop, Les Arcs, France

2017 **3. Invited:** *Neural Network approach to nanoscale cuprate charge density modulations*,
Superstripes conference, Ischia, Italy

2016 **4. Invited:** *Commensurate features of Cuprate Charge Density Modulations*,
Superstripes conference, Ischia, Italy

5. *Universality of commensurate 4a-period charge density modulations throughout the cuprate pseudogap regime*,
American Physical Society (APS) March Meeting, Baltimore, Maryland

Recent Seminars and Posters

2018 **1.** *Anyons on topological defects*, Institut Néel, Grenoble, France

2017 **2.** *Excitations on topological defects in 2D superconductors with spin-orbit coupling*,
GDR Physique Quantique Mésoscopique, *Session plénière*, Aussois, France

3. *Creating fractionalized particles using topological defects*,
Laboratoire de Physique Théorique de la Matière Condensée, UPMC, Paris, France

2015 **4.** *Short-ranged charge modulations in cuprates: r-space or k-space?*,
Laboratoire de Physique Théorique de la Matière Condensée, UPMC, Paris, France

+ 9 talks at conferences, 4 seminars, 4 posters

Selected Publications

(1) *Topological superconductivity with deformable magnetic skyrmions*
Garnier M., Mesaros A. and Simon P., (arXiv:1904.03005); **Communications Physics** 2, 126 (2019)

(2) *Isolated pairs of Majorana zero modes in a disordered superconducting lead monolayer*
Ménard G.C., Mesaros A., Brun C., Debontridder F., Roditchev D., Simon P. and Cren T., (arXiv:1810.09541); **Nature Communications** 10, 2587 (2019)

(3) *Machine Learning in Electronic Quantum Matter Imaging Experiments*
Zhang Y.*, Mesaros A.*, Fujita K., Edkins S.D., Hamidian M.H., Chńg K., Eisaki H., Uchida S., J.C. Séamus Davis, Khatami E. and Kim E.-A., (arXiv:1808.00479); **Nature** 570, 484 (2019)

(4) *Commensurate $4a_0$-period charge density modulations throughout the $Bi_2Sr_2CaCu_2O_{8+x}$ pseudogap regime*
A. Mesaros, K. Fujita, S.D. Edkins, M.H. Hamidian, H. Eisaki, S.-i. Uchida, J.C. Séamus Davis, M.J. Lawler and E.-A. Kim, (arXiv:1608.06180); **Proc. Natl. Acad. Sci. U.S.A.** 113, 12661 (2016)

(5) *Chiral spin density wave, spin-charge-Chern liquid and d+id superconductivity in 1/4-doped correlated electronic systems on the honeycomb lattice*
S. Jiang, A. Mesaros and Y. Ran, (arXiv:1404.3452); **Phys. Rev. X** 4, 031040 (2014)

(6) *Changing topology by topological defects in three-dimensional topologically ordered phases*
A. Mesaros, Y. B. Kim and Y. Ran, (arXiv:1305.0214); **Phys. Rev. B** 88, 035141 (2013)

(7) *Classification of symmetry enriched topological phases with exactly solvable models*
A. Mesaros and Y. Ran, (arXiv:1212.0835); **Phys. Rev. B** 87, 155115 (2013)

(8) *The space group classification of topological band-insulators*
R.-J. Slager, A. Mesaros, V. Juričić and J. Zaanen, (arXiv:1209.2610); **Nat. Phys.** 9, 98 (2013)

(9) *Zero-energy states bound to a magnetic π-flux vortex in a two-dimensional topological insulator*
A. Mesaros, R.-J. Slager, J. Zaanen and V. Juričić, (arXiv:1208.5708); **Nucl. Phys. B** 867, 977 (2013)

(10) *Universal probes of two-dimensional topological insulators: dislocation and pi-flux*
V. Juričić, A. Mesaros, R.-J. Slager, and J. Zaanen, (arXiv:1108.3337); **Phys. Rev. Lett.** 108, 106403 (2012)

(11) *Spectroscopic imaging STM studies of broken electronic symmetries in underdoped cuprates*
K. Fujita, A. Mesaros, M.J. Lawler, S. Sachdev, J. Zaanen, H. Eisaki, S. Uchida, E.-A. Kim and J.C. Davis, **Physica B** 407, 1859 (2012)

(12) *Topological Defects Coupling Smectic Modulations to Intra-unit-cell Nematicity in Cuprates*
A. Mesaros, K. Fujita, I. Firmo, H. Eisaki, S. Uchida, S. Sachdev, J. Zaanen, J.C. Davis, M.J. Lawler and E.-A. Kim, (arXiv:1108.0487); **Science** 333, 426 (2011)

(13) *Electronic States of Graphene Grain Boundaries*
A. Mesaros, S. Papanikolaou, C. F. J. Flipse, D. Sadri and J. Zaanen, (arXiv:1007.1137); **Phys. Rev. B** 82, 205119 (2010), Editors' Suggestion