



# Curriculum Vitae

## HRZZ Form

### PERSONAL INFORMATION

Name and surname **Emil Tafra**  
 Academic title Assistant professor  
 Year and institution 2009., Faculty of Science, University of Zagreb, Croatia  
 of PhD obtained  
 Address Bijenička 32  
 Phone +385 1 460 5521  
 Fax +385 1 468 0336  
 E-mail etafra@phy.hr  
 Personal web page <https://www.pmf.unizg.hr/phy/emil.tafra>  
 Citizenship Croatian  
 Date and place of birth April 26, 1977, Split, Croatia

### WORK EXPERIENCE<sup>1</sup> (CHRONOLOGICALLY\*)

Date (from – until) July 2013 – present  
 Institution Department of Physics, Faculty of Science, University of Zagreb, Croatia  
 Position Assistant professor  
 Work field Natural sciences; Physics; Condensed Matter Physics: Transport phenomena in various materials

Date (from – until) April 2010 – March 2011  
 Institution Paul Scherrer Institut, Switzerland  
 Position Postdoc researcher  
 Work field Natural sciences; Physics; Condensed Matter Physics: Spin dependent transport phenomena in magnetic nanostructures

Date (from – until) September 2009 – June 2013  
 Institution Department of Physics, Faculty of Science, University of Zagreb, Croatia  
 Position Senior research assistant  
 Work field Natural sciences; Physics; Condensed Matter Physics: Transport phenomena in organic conductors, cuprates and oxide heterostructures

Date (from – until) February 2002 – August 2009  
 Institution Department of Physics, Faculty of Science, University of Zagreb, Croatia  
 Position Junior research assistant  
 Work field Natural sciences; Physics; Condensed Matter Physics: Transport phenomena in organic conductors, cuprates and oxide heterostructures

### EDUCATION<sup>2</sup> (CHRONOLOGICALLY)

Date February 2002 – May 2009  
 Place Zagreb  
 Institution Faculty of Science, University of Zagreb, Croatia

<sup>1,2,3</sup> Please add rows to enter all required information

\* all information in the document should be entered chronologically – from the most recent to the oldest

Title of qualification awarded PhD in physics

Date October 1995 - December 2001

Place Zagreb

Institution Department of Physics, Faculty of Science, University of Zagreb, Croatia

Title of qualification awarded diploma in physics

Date 1991 - 1995

Place Split

Institution high school: "3<sup>rd</sup> gymnasium, Split"

Title of qualification awarded

Date 1983 - 1991

Place Split

Institution elementary school: "Duško Mrduljaš"

Title of qualification awarded

**LANGUAGES**

**MOTHER TONGUE** **Croatian**

**ENGLISH LANGUAGE**

Speaking **excellent**

Writing **excellent**

Reading **excellent**

**RESEARCH AND OTHER PROJECTS**

(CHRONOLOGICALLY; LEADER AND ASSOCIATES; FUNDING SOURCE)

2017 - 2021 *Collective effects, tunnelling and topological transport in novel nanojunctions*  
 leader: Doc. dr. sc. Danko Radić, Department of Physics, Faculty of Science, University of Zagreb  
 associates: prof. dr. Nina Marković, Goucher College, Baltimore, Maryland, USA; prof. dr. sc. Aleksa Bjeliš, Department of Physics, Faculty of Science, University of Zagreb; prof. dr. Anatolij M. Kadygrovov, Ruhr Universität Bochum, Germany  
 Croatian Science Foundation Research Project

2014 -2018 *Strongly Correlated Electrons in Layered Organics and Manganites: Low Frequency Excitations and Non-linear Dynamics*  
 leader: dr. sc. Silvia Tomić, Institute of Physics, Zagreb  
 associates: Prof. Dr. Amir Hamzić, Prof. Dr. Mario Basletić, Faculty of Science, University of Zagreb, Croatia; Dr. Bojana Hamzić, Dr. Tomislav Ivek, Prof. dr. Marko Pinterić, Matija Čulo, Institute of Physics, Zagreb  
 Croatian Science Foundation Research Project

- 2013 -2014 *Injection, détection et manipulation de spin dans un gaz bidimensionnel d'oxyde* - PHC- France-Croatia COGITO Program  
 leaders: Prof. Dr. Mario Basletić, Faculty of Science, University of Zagreb, Croatia, Prof. Dr. Agnes Barthélémy, Unité Mixte de Physique CNRS/Thales, Palaiseau, France  
 funded by Croatian and French Government
- 2013 -2014 *Signatures of Dirac electrons in BEDT-TTF salts under pressure*  
 leaders: dr. sc. Silvia Tomić, Institute of Physics, Zagreb, prof. dr. Martin Dressel, 1. Physikalisches Institut Universität Stuttgart  
 associates: Dr. Bojana Hamzić, Matija Čulo, Institute of Physics, Zagreb, Croatia; Dr. Tomislav Ivek, Tobias Knoblauch, Armin Dengl, 1. Physikalisches Institut, Universität Stuttgart  
 funded by Croatian and German Government (MZOS-DAAD project)
- 2010 - 2011 *SwissFEL project, Nanoscale Spin Dynamics Group*  
 leader Prof. Dr. Mathias Kläui, Paul Scherrer Institut / École Polytechnique Fédérale de Lausanne, Switzerland  
 associates: Jakoba Heidler, Jan Rhensius, Helmut Körner, Dr. Emil Tafra, Paul Scherrer Institut, Switzerland  
 funded by the budget of the SwissFEL project at Paul Scherrer Institut, Switzerland
- 2009 - 2010 *Hétérostructures d'Oxydes Multifonctionnels à Mobilité Elevée pour la Spintronique* - PHC- France-Croatia COGITO Program  
 leaders: Prof. Dr. Amir Hamzić, Faculty of Science, University of Zagreb, Croatia, Prof. Dr. Agnes Barthélémy, Unité Mixte de Physique CNRS/Thales, Palaiseau, France  
 associates: Doc. Dr. Mario Basletić, Dr. Emil Tafra, Faculty of Science, University of Zagreb, Croatia; Prof. Dr. Albert Fert, Dr. Manuel Bibes, Karim Bouzehouane, Dr. Eric Jacquet, Dr. Cecile Carrétéro, Dr. Stephen Fusil, Olivier Copie, Unité Mixte de Physique CNRS/Thales, Palaiseau, France  
 funded by Croatian and French Government
- 2007 - 2014 *Systems with spatial and dimensional restrictions: correlations and spin effects*  
 leader: Prof. Dr. Amir Hamzić, Faculty of Science, University of Zagreb, Croatia  
 associates: Doc. Dr. Mario Basletić, Prof. Dr. Aleksa Bjeliš, Dr. Danko Radić, Dr. Emil Tafra, Faculty of Science, University of Zagreb, Croatia; Dr. Bojana Hamzić, Institute of Physics, Zagreb, Croatia; Željana Bonačić-Lošić, Department of Physics, Faculty of Natural Sciences, Mathematics and Education, University of Split, Croatia  
 funded by the Croatian Ministry of Science
- 2005 - 2006 *Renversement d'aimantation et excitations magnétiques dans de nouveaux dispositifs d'électronique de spin* - France-Croatia COGITO Program  
 leaders: Prof. Dr. Amir Hamzić, Faculty of Science, University of Zagreb, Croatia; Dr. Vincent Cros, Unité Mixte de Physique CNRS/Thales, Palaiseau, France  
 associates: Doc. Dr. Mario Basletić, Emil Tafra, Faculty of Science, University of Zagreb, Croatia; Prof. Dr. Albert Fert, Dr. JM George, Dr. Henry Jaffres, Unité Mixte de Physique CNRS/Thales, Palaiseau, France  
 funded by Croatian and French Government

2002 - 2006

*Collective properties of condensates with reduced dimensionality*

leader Prof. Dr. Amir Hamzić, Faculty of Science, University of Zagreb, Croatia

associates: Dr. Mario Basletić, Prof. Dr. Aleksa Bjeliš, Mr. DanĀo Radić, Emil Tafra, Faculty of Science, University of Zagreb, Croatia; Źeljana Agić, Department of Physics, Faculty of Natural Sciences, Mathematics and Education, University of Split, Croatia

funded by the Croatian Ministry of Science

**TEACHING**

(CHRONOLOGICALLY; UNDERGRADUATE, GRADUATE, POSTGRADUATE STUDY PROGRAMMES)

Professor:

2016 -	Experimental techniques in Physics
2016 -	Microelectronics
2015 -	Electronics Lab
2014 -	Low temperature physics and superconductivity
2011 - 2015	Advanced laboratory exercises in physics 1 and 2
2011 - 2015	Laboratory exercises in physics 3 and 4

Teaching assistant for:

2011 - 2015	Advanced laboratory exercises in physics 1
2006 - 2015	Microelectronics
2007 - 2015	Advanced laboratory exercises in physics 2
2002 - 2010	Electronics Lab
2002 - 2010	Laboratory exercises in basic electronics
2002 - 2006	Laboratory exercises in computer programming I and II

all at the master of physics study program at Department of Physics, Faculty of Science, University of Zagreb, Croatia

**VISITS TO FOREIGN RESEARCH AND EDUCATION INSTITUTIONS**

(CHRONOLOGICALLY; ONLY VISITS LONGER THAN 3 MONTHS)

April 2010 - March 2011 Paul Scherrer Institut, Switzerland

**MEMBERSHIP IN SCIENCE ORGANIZATIONS AND BODIES**

(CHRONOLOGICALLY; HOME AND INTERNATIONAL ORGANIZATIONS AND BODIES)

1995 - present member of the Croatian Physical Society

**PAPERS**

(CHRONOLOGICALLY; RESEARCH BOOKS, HOME AND INTERNATIONAL RESEARCH JOURNALS, HOME AND INTERNATIONAL CONFERENCE PROCEEDINGS; PLEASE WRITE THEIR IMPACT FACTOR)

articles in journals (times cited  $\geq$  616, IF = 65.25):

1. M. Čulo, M. Basletić, E. Tafra, A. Hamzić, S. Tomić, F. Fischgrabe, V. Moshnyaga, B. Korin-Hamzić, Magnetotransport properties of  $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$  ( $0.52 \leq x \leq 0.75$ ): Signature of phase coexistence, *Thin solid films* **631**, 205 (2017) (times cited  $\geq$  1, IF=1.88)
2. Tomislav Ivek, Matija Čulo, Marko Kuveždić, Eduard Tutiš, Mario Basletić, Branimir Mihaljević, Emil Tafra, Silvia Tomić, Anja Löhle, Martin Dressel, Dieter Schweitzer, Bojana Korin-Hamzić, Semimetallic and charge-ordered  $\alpha$ -(BEDT-TTF) $_2$ I $_3$ : On the role of disorder in dc transport and dielectric properties, *Phys. Rev. B* **96**, 075141 (2017) (times cited  $\geq$  1, IF=3.84)
3. A. Löhle, E. Rose, S. Singh, R. Beyer, E. Tafra, T. Ivek, E. I. Zhilyaeva, R. N. Lyubovskaya and M. Dressel, Pressure dependence of the metal-insulator transition in  $\kappa$ -(BEDT-TTF) $_2$ Hg(SCN) $_2$ Cl: optical and transport studies, *J. Phys.: Condens. Matter* **29** 055601 (2017) (times cited  $\geq$  0, IF=2.65)
4. M. Pinterić, T. Ivek, M. Čulo, O. Milat, M. Basletić, B. Korin-Hamzić, E. Tafra, A. Hamzić, M. Dressel, S. Tomić, What is the origin of anomalous dielectric response in 2D organic dimer Mott insulators  $\kappa$ -(BEDT-TTF) $_2$ Cu[N(CN) $_2$ ]Cl and  $\kappa$ -(BEDT-TTF) $_2$ Cu $_2$ (CN) $_3$ , *Physica B: Physics of Condensed Matter* **460**, 202 (2015) (times cited  $\geq$  9, IF=1.28)
5. M. Čulo, E. Tafra, M. Basletić, S. Tomić, A. Hamzić, B. Korin-Hamzić, M. Dressel, J.A. Schlueter, Two-dimensional variable range hopping in the spin-liquid candidate  $\kappa$ -(BEDT-TTF) $_2$ Cu $_2$ (CN) $_3$ , *Physica B: Physics of Condensed Matter* **460**, 208 (2015) (times cited  $\geq$  6, IF=1.28)
6. M. Pinterić, M. Čulo, O. Milat, M. Basletić, B. Korin-Hamzić, E. Tafra, A. Hamzić, T. Ivek, T. Peterseim, K. Miyagawa, K. Kanoda, J. A. Schlueter, M. Dressel, S. Tomić, Anisotropic charge dynamics in the quantum spin-liquid candidate  $\kappa$ -(BEDT-TTF) $_2$ Cu $_2$ (CN) $_3$  *Physical Review B* **90**, 195139 (2014) (times cited  $\geq$  19, IF=3.66)
7. E. Tafra, M. Čulo, B. Korin-Hamzić, M. Basletić, A. Hamzić, C. S. Jacobsen, The Hall effect in the organic conductor TTF-TCNQ: choice of geometry for accurate measurements of a highly anisotropic system, *J. Phys.: Condens. Matter* **24**, 045602 (2012) (times cited  $\geq$  0, IF=2.332)
8. G. Herranz, O. Copie, A. Gentils, E. Tafra, M. Basletić, F. Fortuna, K. Bouzehouane, S. Fusil, E. Jacquet, C. Carrétéro, M. Bibes, A. Hamzić, A. Barthélémy, *Vacancy defect and carrier distributions in the high mobility electron gas formed at ion-irradiated SrTiO $_3$  surfaces*, *J. Appl. Phys.* **107**, 103704 (2010) (times cited  $\geq$  12, IF = 2.072)
9. A. Gentils, O. Copie, G. Herranz, F. Fortuna, M. Bibes, K. Bouzehouane, E. Jacquet, C. Carrétéro, M. Basletić, E. Tafra, A. Hamzić, A. Barthélémy, *Point defect distribution in high-mobility conductive SrTiO $_3$  crystals*, *Phys. Rev. B* **81**, 144109 (2010) (times cited  $\geq$  15, IF = 3.475)
10. E. Tafra, B. Korin-Hamzić, M. Basletić, A. Hamzić, M. Dressel, J. Akimitsu, *Hall effect in Sr $_{14-x}$ Ca $_x$ Cu $_24$ O $_{41}$* , *Physica B* **404**, 385 (2009) (times cited  $\geq$  1, IF = 1.056)
11. G. Herranz, M. Basletić, O. Copie, M. Bibes, A. N. Khodan, C. Carrétéro, E. Tafra, E. Jacquet, K. Bouzehouane, A. Hamzić, and A. Barthélémy, *Controlling high-mobility conduction in SrTiO $_3$  by oxide thin film deposition*, *Appl. Phys. Lett.* **94**, 012113 (2009) (times cited  $\geq$  24, IF = 3.554)
12. E. Tafra, B. Korin-Hamzić, M. Basletić, A. Hamzić, M. Dressel, J. Akimitsu, *Influence of doping on the Hall coefficient in Sr $_{14-x}$ Ca $_x$ Cu $_24$ O $_{41}$* , *Phys. Rev. B* **78**, 155122 (2008) (times cited  $\geq$  7, IF = 3.322)
13. E. Tafra, M. Basletić, R. Ristić, E. Babić, A. Hamzić, *Enhanced superconductivity in Hf-base metallic glasses*, *J. Phys.: Condens. Matter* **20**, 425215 (2008) (times cited  $\geq$  2, IF = 1.9)
14. M. Požek, I. Kupčić, A. Dulčić, A. Hamzić, D. Paar, M. Basletić, E. Tafra, G.V.M. Williams, *Microwave and magnetotransport properties of RuSr $_2$ RCu $_2$ O $_8$  (R=Eu, Gd) doped with Sn*, *Phys. Rev. B* **77**, 214514 (2008) (times cited  $\geq$  5, IF = 3.322)
15. G. Herranz, M. Basletić, M. Bibes, R. Ranchal, A. Hamzić, H. Jaffrès, E. Tafra, K. Bouzehouane, E. Jacquet, J.P. Contour, A. Barthélémy, A. Fert, *High-spin polarized Co-doped (La,Sr)TiO $_3$  thin films on high-mobility SrTiO $_3$  substrates*, *Journal of Magnetism and Magnetic Materials*, **310**, 2111, (2007) (times cited  $\geq$  2, IF = 1.704)

16. M. Požek, A. Dulčić, A. Hamzić, M. Basletić, E. Tafra, G. V. M. Williams, S. Kramer, *Magnetotransport of lanthanum doped RuSr<sub>2</sub>GdCu<sub>2</sub>O<sub>8</sub> - the role of gadolinium*, European Physical Journal B **57** 1 (2007) (times cited ≥ 2, IF = 1.356)
17. G. Herranz, M. Basletić, M. Bibes, C. Carretero, E. Tafra, E. Jacquet, K. Bouzouane, C. Deranlot, A. Hamzić, J. M. Broto, A. Barthélémy, A. Fert, *High mobility in LaAlO<sub>3</sub>/SrTiO<sub>3</sub> heterostructures: Origin, dimensionality, and perspectives*, Phys. Rev. Lett. **98** 216803 (2007) (times cited ≥ 366, IF = 6.944)
18. B. Korin-Hamzić, E. Tafra, M. Basletić, A. Hamzić, and M. Dressel, *Conduction anisotropy and Hall effect in the organic conductor (TMTTF)<sub>2</sub>AsF<sub>6</sub>: Evidence for Luttinger liquid behavior and charge ordering*, Phys. Rev. B **73**, 115102 (2006) (times cited ≥ 17, IF = 3.107)
19. G. Herranz, M. Basletić, M. Bibes, R. Ranchal, A. Hamzić, E. Tafra, K. Bouzouane, E. Jacquet, J. P. Contour, A. Barthélémy, and A. Fert, *Full oxide heterostructure combining a high-T<sub>c</sub> diluted ferromagnet with a high-mobility conductor*, Phys. Rev. B **73**, 064403 (2006) (times cited ≥ 33, IF = 3.107)
20. G. Herranz, R. Ranchal, M. Bibes, H. Jaffrès, E. Jacquet, J.-L. Maurice, K. Bouzouane, F. Wyczisk, E. Tafra, M. Basletić, A. Hamzić, C. Colliex, J.-P. Contour, A. Barthélémy, and A. Fert, *Co-Doped (La,Sr)TiO<sub>3-δ</sub>: A High Curie Temperature Diluted Magnetic System with Large Spin Polarization*, Phys. Rev. Lett. **96**, 027207 (2006) (times cited ≥ 52, IF = 7.072)
21. B. Korin-Hamzić, E. Tafra, M. Basletić, A. Hamzić, L. Montgomery, M. Dressel, *Hall effect in the normal phase of the organic conductors: (TMTSF)<sub>2</sub>ReO<sub>4</sub> vs. (TMTTF)<sub>2</sub>AsF<sub>6</sub>*, Journal de physique. IV **114**, 73 (2004) (times cited ≥ 0, IF = 0.294)
22. B. Korin-Hamzić, E. Tafra, M. Basletić, A. Hamzić, G. Untereiner, M. Dressel, *Conduction anisotropy, Hall effect and magnetoresistance of (TMTSF)<sub>2</sub>ReO<sub>4</sub> at high temperatures*, Synthetic Metals **137**, 1323 (2003) (times cited ≥ 0, IF = 1.303)
23. B. Korin-Hamzić, E. Tafra, M. Basletić, A. Hamzić, G. Untereiner, and M. Dressel, *Conduction anisotropy, Hall effect, and magnetoresistance of (TMTSF)<sub>2</sub>ReO<sub>4</sub> at high temperatures*, Phys. Rev. B **67**, 014513 (2003) (times cited ≥ 15, IF = 2.962)
24. M. Požek, A. Dulčić, D. Paar, A. Hamzić, M. Basletić, E. Tafra, G. V. M. Williams, and S. Krämer, *Decoupled CuO<sub>2</sub> and RuO<sub>2</sub> layers in superconducting and magnetically ordered RuSr<sub>2</sub>GdCu<sub>2</sub>O<sub>8</sub>*, Phys. Rev. B **65**, 174514 (2002) (times cited ≥ 30, IF = 3.07)

in addition: 48 abstracts in conference proceedings

#### COMPUTER SKILLS

Advanced user of Windows and Unix operating systems, word processors Microsoft Word and Latex, and software packages Mathematica and SigmaPlot

Advanced user of LabView package for experiment control and measurement

#### OTHER IMPORTANT SKILLS AND COMPETENCES

Moderating videoconference and face-to-face group meetings

#### ADDITIONAL INFORMATION AND NOTES

## Talks and seminars at institutions:

1. E. Tafra, Magnetotransport properties of organic and inorganic materials: influence of disorder, pressure and doping, University of Split, Croatia, (2016)
2. E. Tafra, Magnetotransport properties of various materials: effects of dimensionality, Universität Stuttgart, Germany, (2014)
3. E. Tafra, The influence of the dimensionality on the magnetotransport properties of organic and inorganic materials, Universität Konstanz, Germany, (2009)

## Participation at international conferences:

1. E. Tafra, M. Čulo, M. Basletić, B. Mihaljević, N. Novosel, S. Tomić, A. Hamzić, B. Korin-Hamzić, Time- and history-dependent transport phenomena in overdoped manganites  $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ , International School and Workshop on Electronic Crystals – ECRYS 2014, Cargese, France (2017) – **poster**
2. M. Čulo, E. Tafra, M. Basletić, S. Tomić, A. Hamzić, B. Korin-Hamzić, M. Dressel, J.A. Schlueter, Temperature dependence of anisotropic resistivity and hall coefficient of the spin-liquid candidate  $\kappa\text{-(BEDT-TTF)}_2\text{Cu}_2(\text{CN})_3$ , International School and Workshop on Electronic Crystals – ECRYS 2014, Cargese, France (2014) – **poster**
3. E. Tafra, B. Korin-Hamzić, M. Basletić, A. Hamzić, M. Dressel, J. Akimitsu, Hall effect in  $\text{Sr}_{14-x}\text{Cu}_x\text{Cu}_{24}\text{O}_{41}$ , International Workshop on Electronic Crystals – ECRYS, Cargese, France (2008) – **invited talk**
4. E. Tafra, B. Korin-Hamzić, M. Basletić, A. Hamzić, M. Dressel, Detailed characterization of CO transition in  $(\text{TMTTF})_2\text{AsF}_6$  from transport measurements, Recent Developments in Low Dimensional Charge Density Wave Conductors, Skradin, Croatia (2006) - **talk**

In addition 6 participation at domestic conferences.

Referee for New Journal of Physics, Journal of Physics: Condensed Matter, Journal of Physics D: Applied Physics