

## Tomislav Vuletić

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## Education

- 2004: Ph.D., University of Zagreb, Faculty of Science, Physics Dept.; Thesis: Collective Electronic States of the New Quasi-one-dimensional Materials [thesis](#)
- 1998: B.Sc. work: *Nonlinear conductivity in quasi-one dimensional organic conductors (TMTSF)<sub>2</sub>PF<sub>6</sub> and (TMTSF)<sub>2</sub>AsF<sub>6</sub>* [thesis](#)

## Positions, Projects, Professional Activities

- 2011-present: Senior research associate (associate professor level), Institute of physics, Zagreb.
- 2007-2010: Research associate (assistant professor level), Institute of physics, Zagreb.
- 2006-2007: Postdoc, *Marie Curie Training Network Fellowship*, LPS, Universite Paris XI, Orsay, France
  
- 2013-2015: Project leader [Confined DNA](#). Grant by [Unity through Knowledge Fund](#).
- 2013-2015: Bilateral projects Austria-Croatia (2014-2015):
  - [Investigation of molecular ligand-receptor recognition tuned by cryoprotectants](#)
    - Collaborator: A. Ebner, Johannes Kepler University, Linz
  - [Tuning the interaction in lipid multibilayers by ions: When does a multivalent ion become a polyion?](#)
    - Collaborator: G. Pabst, University of Graz
- 2008-2010: Project leader [PROTEASSIST](#) project *Protein Assisted DNA Monolayer Assembly*. Grant by [Unity through Knowledge Fund](#)
- 2007-2013: Collaborator on the Ministry of Science project by S. Tomić [Strongly correlated inorganic, organic and biomaterials](#)
  
- 2010-present: Secretary, [Croatian Biophysical Society](#)
- 2012: Chairman, [International School of Biophysics](#)
  
- 2012: Member of the OC for the 2<sup>nd</sup> [EMBO Conference "Physics of Cells"](#), Marseille, France;
- 2011: Member of the OC of the 7<sup>th</sup> meeting of the Croatian Physical Society, Primošten
- 2010: Member of the OC of the 41<sup>st</sup> [International Physics Olympiad](#), Zagreb
- 2009: Co-organizer of an [EMBO Conference "Physics of Cells"](#), Primošten, Croatia
- 2008: Organizer of the 3<sup>rd</sup> [Xmas Biophysics Workshop](#), D. Stubica, Croatia
- 2009: Organizer, [Science fair](#), Institute of physics, Zagreb

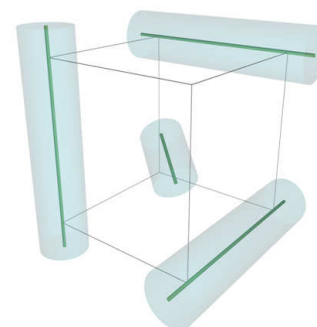
## Publications

1. K. Salamon, D. Aumiler, G. Pabst, **T. Vuletić**, *Probing the mesh formed by the semirigid polyelectrolytes*, [Macromolecules](#) **46**, 1107 (2013)
2. A. Horvatić, I. Dodig, **T. Vuletić**, D. Pavoković, L. Bindila, A. Butorac, M. Cindrić, *A comparison between enhanced MALDI in-source decay by ammonium persulfate and N- or C-terminal derivatization methods for detailed peptide structure determination*, [Analytical Chemistry](#) **85**, 3940-3947 (2013)
3. S. Tomić, D. Grgičin, T. Ivek, **T. Vuletić**, S. Dolanski Babić and R. Podgornik, *Dynamics and structure of biopolyelectrolytes in repulsion regime characterized by dielectric spectroscopy*, [Physica B: Condensed Matter](#) **407**, 1958-1963 (2012) ([download](#)).
4. S. Tomić, D. Grgičin, T. Ivek, S. Dolanski Babić, **T. Vuletić**, G. Pabst and R. Podgornik, *Dynamics and Structure of Biopolyelectrolytes characterized by*

## International School of Biophysics



## IMAGES



## Confined DNA

UKF grant 200 000€  
dates: 15/10/13-15/10/15  
Project leader:  
T. Vuletic  
Institute of physics, Zagreb  
Project co-leader:  
A. Radenovic,  
LBEN, EPFL, Lausanne, CH

- Dielectric Spectroscopy*, Macromolecular Symposia **305**, 43-54 (2011) Online ISSN: 1521-3900 (download).
5. **T. Vuletić**, S. Dolanski Babić, D. Grgičin, D. Aumiler, J. Raedler, F. Livolant and S. Tomić, *Manning free counterions fraction for a rod-like polyanion – short DNA fragments in very low salt*, Phys. Rev. E **83**, 041803 (2011) (download).
  6. **T. Vuletić**, S. Dolanski Babić, T. Ivek, D. Grgičin, S. Tomić and R. Podgornik, *Structure and dynamics of hyaluronic acid semidilute solutions: a dielectric spectroscopy study*, Phys. Rev. E **82**, 011922 (2010) (download).
  7. T. Ivek, **T. Vuletić**, B. Korin-Hamzić, O. Milat, S. Tomić, B. Gorshunov, M. Dressel, J. Akimitsu, Y. Sugiyama, C. Hess and B. Büchner, *Crossover in charge transport from one-dimensional copper-oxygen chains to two-dimensional ladders in  $(La, Y)_y(Sr, Ca)_{14-y}Cu_{24}O_{41}$* , Phys. Rev. B **78**, 205105 (2008) (download).
  8. S. Tomić, S. Dolanski Babić, T. Ivek, **T. Vuletić**, S. Krča, F. Livolant and R. Podgornik, *Short-fragment Na-DNA dilute aqueous solutions: fundamental length scales and screening*, EPL **81**, 68003 (2008) (download).
  9. T. Ivek, **T. Vuletić**, S. Tomić, A. Akrap, H. Berger and L. Forró, *Collective Charge Excitations below the Metal-to-Insulator Transition in  $BaVS_3$* , Phys. Rev. B **78**, 035110 (2008) (download).
  10. S. Tomić, S. Dolanski-Babić, **T. Vuletić**, S. Krča, D. Ivanković, L. Griparić and R. Podgornik, *Dielectric relaxation of DNA aqueous solutions*, Phys. Rev. E **75**, 021905 (2007) (download).
  11. **T. Vuletić**, B. Korin-Hamzić, T. Ivek, S. Tomić, B. Gorshunov, M. Dressel and J. Akimitsu, *The Spin-Ladder and Spin-Chain System  $(La, Y, Sr, Ca)_{14}Cu_{24}O_{41}$ : Electronic Phases, Charge and Spin Dynamics*, Phys. Rep. **428**, 169-258 (2006) (download).
  12. S. Tomić, **T. Vuletić**, S. Dolanski-Babić, S. Krča, D. Ivanković, L. Griparić and R. Podgornik, *Screening and Fundamental Length Scales in Semidilute Na-DNA Aqueous Solutions*, Phys. Rev. Lett. **97**, 098303 (2006) (download).
  13. **T. Vuletić**, T. Ivek, B. Korin-Hamzić, S. Tomić, B. Gorshunov, M. Dressel, C. Hess, B. Büchner and J. Akimitsu, *Phase diagrams of  $(La, Y, Sr, Ca)_{14}Cu_{24}O_{41}$ : switching between the ladders and the chains*, J. Phys. IV France **131**, 299-305 (2005) (download).
  14. P. Zornoza, K. Petukhov, M. Dressel, N. Biskup, **T. Vuletić** and S. Tomić, *Anisotropy and field-dependence of the spin-density-wave dynamics in the quasi one-dimensional conductor  $(TMTSF)_2PF_6$* , Eur. Phys. J. B **46**, 223-230 (2005) (download).
  15. **T. Vuletić**, T. Ivek, B. Korin-Hamzić, S. Tomić, B. Gorshunov, P. Haas, M. Dressel, J. Akimitsu, T. Sasaki and T. Nagata, *Anisotropic Charge Modulation in the Ladder Planes of  $Sr_{14-x}Ca_xCu_{24}O_{41}$* , Phys. Rev. B **71**, 012508 (2005) (download).
  16. M. Pinterić, **T. Vuletić**, M. Lončarić, K. Petukhov, B. Gorshunov, J. U. von Schütz, S. Tomić and M. Dressel, *Mott-Peierls phase in deuterated copper-DCNQI systems: a comprehensive study of longitudinal and transverse conductivity and ageing effects*, J. Phys.: Condens. Matter **15**, 7351-7364 (2003) (download).
  17. **T. Vuletić**, B. Korin-Hamzić, S. Tomić, B. Gorshunov, P. Haas, M. Dressel, J. Akimitsu, T. Sasaki and T. Nagata, *Variable-range hopping conductivity in the copper-oxygen chains of  $La_3Sr_3Ca_8Cu_{24}O_{41}$* , Phys. Rev. B **67**, 184521 (2003) (download).
  18. **T. Vuletić**, B. Korin-Hamzić, S. Tomić, B. Gorshunov, P. Haas, T. Rößm, M. Dressel, J. Akimitsu and T. Nagata, *Suppression of the charge-density wave state in  $Sr_{14}Cu_{24}O_{41}$  by calcium doping*, Phys. Rev. Lett. **90**, 257002 (2003) (download).
  19. B. Gorshunov, P. Haas, T. Rößm, M. Dressel, **T. Vuletić**, B. Korin-Hamzić, S. Tomić, J. Akimitsu and T. Nagata, *Charge Density Wave formation in  $Sr_{14-x}Ca_xCu_{24}O_{41}$* , Phys. Rev. B **66**, 060508(R) (2002) (download).
  20. S. Tomić, **T. Vuletić**, M. Pinterić and B. Korin-Hamzić, *Modalities of Self-Organized Charge Response in Low Dimensional Systems*, J. Phys. IV France **12**, Pr9-211 (2002) (download).
  21. **T. Vuletić**, P. Auban-Senzier, C. Pasquier, S. Tomić, D. Jérôme, M. Héritier and K. Bechgaard, *Coexistence of Superconductivity and Spin Density Wave orderings in the organic superconductor  $(TMTSF)_2PF_6$* , Eur. Phys. J. B **25**, 319-331 (2002) (download).
  22. C. Pasquier, P. Auban-Senzier, **T. Vuletić**, S. Tomić, M. Héritier and D. Jérôme, *Coexistence of superconductivity and spin density wave orderings in Bechgaard and Fabre salts*, J. Phys. IV France **12**, Pr9-197 (2002) (download).
  23. **T. Vuletić**, M. Pinterić, M. Lončarić, S. Tomić and J. U. von Schütz, *Non-ohmic electrical transport in the Peierls-Mott state of deuterated copper-DCNQI systems*, Synth. Metals **120**, 1001 – 1002 (2001) (download).
  24. **T. Vuletić**, C. Pasquier, P. Auban-Senzier, S. Tomić, D. Jérôme, K. Maki and K. Bechgaard, *Influence of quantum Hall effect on linear and nonlinear conductivity in the FISDW states of the organic conductor  $(TMTSF)_2PF_6$* , Eur. Phys. J. B **21**, 53 – 60 (2001) (download).
  25. M. Pinterić, **T. Vuletić**, S. Tomić and J. U. von Schütz, *Complex low-frequency dielectric relaxation of the charge-density wave state in the  $(2,5(OCH_3)_2DCNQI)_2Li$* , Eur. Phys. J. B **22**, 335 – 341 (2001) (download).
  26. S. Tomić, M. Pinterić, **T. Vuletić**, J. U. von Schütz and D. Schweitzer, *Low-frequency dielectric spectroscopy of commensurate density waves*, Synth. Metals **120**, 695 – 698 (2001) (download).
  27. M. Pinterić, **T. Vuletić**, M. Lončarić, S. Tomić and J. U. von Schütz, *Low frequency dielectric spectroscopy of the Peierls-Mott insulating state in the deuterated copper-DCNQI systems*, Eur. Phys. J. B **16**, 487 – 493 (2000) (download).
  28. N. Biškup, **T. Vuletić**, D. Herman, S. Tomić, M. Nagasawa and K. Bechgaard, *Low Frequency Dielectric Response in Spin Density Wave Phase of Bechgaard Salts*, Synth. Metals **103**, 2052 – 2053 (1999) (download).
  29. **T. Vuletić**, D. Herman, N. Biskup, M. Pinterić, A. Omerzu, S. Tomić and M. Nasagawa, *Single-particle and spin-density wave charge dynamics in  $(TMTSF)_2PF_6$  And  $(TMTSF)_2AsF_6$ : A comparative overview*, J. Phys. IV France **9**, Pr10-275 – Pr10-277 (1999) (download)

#### Other publications

1. S. Tomić, D. Grgičin, **T. Vuletić**, S. Dolanski Babić, T. Ivek and R. Podgornik, *DNA in aqueous solutions with repulsive interactions: structure determined on the basis of dielectric spectroscopy measurements*, [[Bioinformatics and biological physics: proceedings of the scientific meeting, edited by Vladimir Paar, Zagreb, Croatian Academy of Sciences and Arts, Committee for Bioinformatics and Biological Physics of Department for Mathematical, Physical and Chemical Sciences]], p. 159-177 (2013) (download).
2. O. Milat, K. Salamon, S. Tomić, **T. Vuletić** and T. Ivek, *Commensurate superstructures in the  $[(Ca/Sr)_2Cu_2O_3][CuO_2]_{x \approx 1/2}$  composite crystal* // Proceedings 10th Multinational Congress on Microscopy 2011 / Falcieri, Elisabetta (ur.). Urbino : Societa Italiana Scienze Microscopiche (SISM), 2011. 41-42
3. O. Milat, K. Salamon, S. Tomić, **T. Vuletić** and T. Ivek, *Diffraction analysis of incommensurate modulation in "chain-ladder" composite crystal  $(Sr/Ca)_{14}Cu_{24}O_{41}$* , 209-210, 14th European Microscopy Congress EMC2008, Aachen, Germany, 1-5 September 2008 (Springer-Verlag Berlin ISBN 978-3-540-85154-7, 2008)
4. *Physics of Cells: from the Edge to the Heart – PhysCell 2009* / the First meeting of the European Molecular Biology Organization Conference Series on Cell Biophysics, Primošten, Croatia, September 6-13, 2009, edited by A.S. Smith, **T. Vuletić**, K. Sengupta, L. Limozin, L. Vonna, T. Franosch (Institut za fiziku, Zagreb, 2009) – Book of Abstracts.
5. *The 11th Greta Pifat Mrzljak International School of Biophysics: Biomolecular Complexes and Assemblies* Sep30-Oct9 2012. edited by Hozić, Amela; **Vuletić, Tomislav** (Institut Ruđer Bošković, Hrvatsko biofizičko društvo, Zagreb, 2012) – Book of Abstracts. ISBN: 978-953-6690-95-4