

# Zlatko Tesanovic

Zlatko was born in Sarajevo (former Yugoslavia) on August 1, 1956 and passed away on July 26, 2012.



Institute for Quantum Matter, Johns Hopkins-Princeton

## **Positions**

1994-2012: Professor, Johns Hopkins University

1990-1994: Associate Professor, Johns Hopkins University

1987-1990: Assistant Professor, Johns Hopkins University

1987-1988: Director's Postdoctoral Fellow (on leave from JHU), Los Alamos National Laboratory

1985-1987: Postdoctoral Fellow, Harvard University

## **Education**

1980-1985: Ph.D. in Physics, University of Minnesota

1975-1979: B.Sc. in Physics (Summa cum Laude), University of Sarajevo, former Yugoslavia

## **Fellowships, Awards, Honors**

Foreign Member, The Royal Norwegian Society of Sciences and Letters

Fellow, The American Physical Society, Division of Condensed Matter Physics

Inaugural Speaker, J. R. Schrieffer Lecture Series, National High Magnetic Field Laboratory, 1997

David and Lucille Packard Foundation Fellowship, 1988-1994

J. R. Oppenheimer Fellowship, Los Alamos National Laboratory, 1985 (declined)

Stanwood Johnston Memorial Fellowship, University of Minnesota, 1984

Shevlin Fellowship, University of Minnesota, 1983

Fulbright Fellowship, US Institute of International Education, 1980



# Zlatko Tesanovic

## Graduate Students (10)

L. Xing (Jacob Haimson Professor, Stanford),  
I. F. Herbut (Professor, Simon Fraser University, Canada),  
A. Andreev (Associate Professor, University of Washington),  
S. Dukan (Professor and Chair of Physics, Goucher College),  
O. Vafek (Associate Professor, Florida State University and NHMFL),  
A. Melikyan (Editor, Physical Review B),  
Andres Concha (Postdoctoral Fellow, Harvard),  
Valentin Stanev (Postdoctoral Fellow, Argonne NL),

Jian Kang (current),  
James Murray (current)

## Postdoctoral Advisees (9)

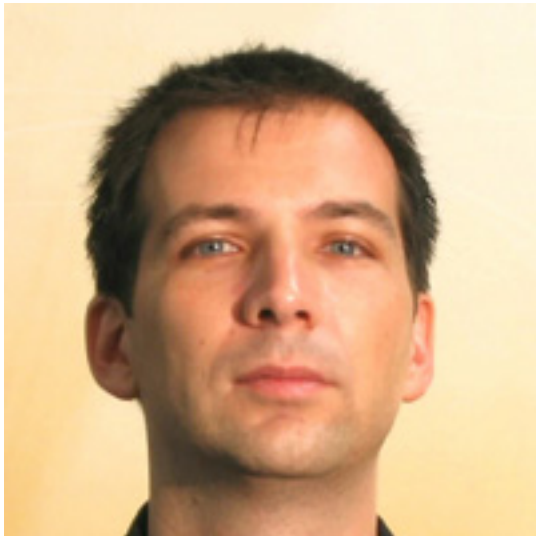
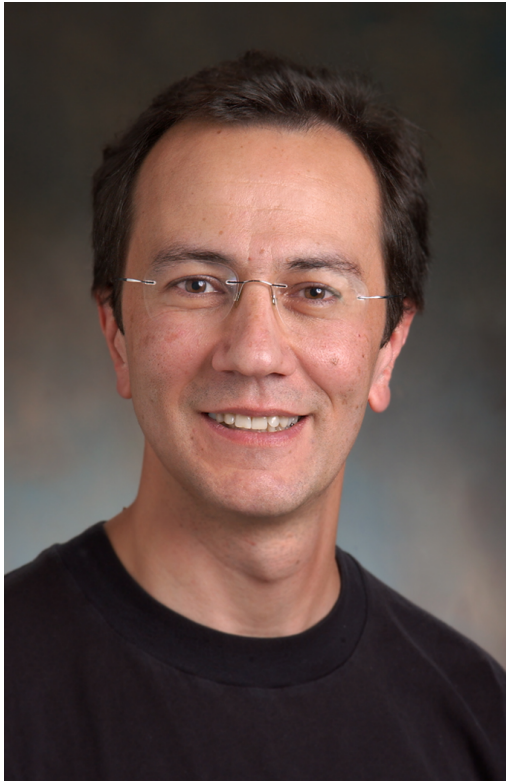
A. Singh (Professor, IIT Kanpur, India),  
S. Theodorakis (Professor, University of Cyprus, Cyprus),  
J. H. Kim (Professor and Chair of Physics, University of North Dakota),  
Z. Gedik (Professor, Sabanci University, Turkey),  
M. Franz (Professor, University of British Columbia, Canada),  
Q. Chen (Changjiang Professor, Zhejiang University, PRC),  
V. Cvetkovic (Postdoctoral Fellow, NHMFL),  
A. Del Maestro (Assistant Professor, University of Vermont),

V. Vakaryuk (incoming)

## Outside Collaborators (last 5 years)

P. Sacramento (Instituto Superior Tecnico – Lisbon, Portugal),  
A. Melikyan (Argonne NL),  
I. F. Herbut (Simon Fraser, Canada),  
V. Juricic (Leiden University, The Netherlands)

1995 (10 m); 1998 (2 w); 2007 (1w); 2010 (3 m)

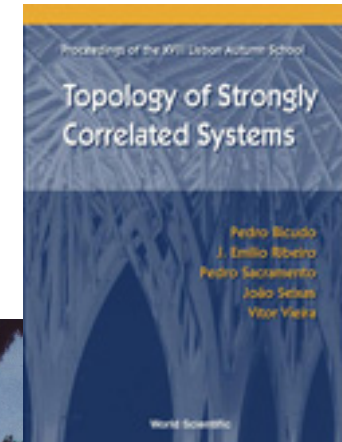








Topology of strongly correlated systems  
Lisbon 8-13 October 2000  
XVIII CFIF Autumn School



**Quantum coherence and correlations in  
condensed-matter  
and cold-atom systems**  
Évora, Portugal, 11-15 October 2010



Type-II superconductors in high magnetic fields  
(P.D.S.)

Effects of disorder and magnetic fields in superconductors  
(José Lages, P.D.S.)

Collaborator of FCT Project on Iron Pnictides  
(Miguel Araújo, P.D.S.)

Phase fluctuations and pseudogap in cuprates  
(P.D.S.)

Specific heat of pnictides in magnetic fields  
(Miguel Araújo, P.D.S.)

Collaborator of FCT Project on Topological Phases of Matter  
(P.D.S., Miguel Araújo, Eduardo Castro, Vitor Vieira, Vitalii Dugaev, Pedro Ribeiro  
Nikola Paunkovic)

**Zlatko Tesanovic on string theory**

**"Superstringers have now created a culture in physics departments that is openly disdainful of experiments. ... There is an intellectual struggle going on for the very soul of theoretical physics, and for the hearts and minds of young scientists entering our field."**

- Dr. Zlatko Tesanovic, physicist at Johns Hopkins University

Zlatko's Best Places to Eat in Baltimore -- Great Food Finds in Charm City

Politics

Finance

Basketball

Theoretical Condensed Matter Physics:

Strongly Correlated Electrons,  
High Temperature Superconductivity,  
Quantum Hall Effect(s),  
High Magnetic Fields

## Multiband magnetism and superconductivity in Fe-based compounds

V. CVETKOVIC<sup>(a)</sup> and Z. TESANOVIC

*Department of Physics and Astronomy, The Johns Hopkins University - Baltimore, MD 21218, USA*

received 12 November 2008; accepted in final form 18 January 2009  
published online 13 February 2009

VOLUME 69, NUMBER 24

PHYSICAL REVIEW LETTERS

14 DECEMBER 1992

---

### Critical Fluctuations in the Thermodynamics of Quasi-Two-Dimensional Type-II Superconductors

Zlatko Tešanović,<sup>(1),(2)</sup> Lei Xing,<sup>(1),(3)</sup> Lev Bulaevskii,<sup>(1)</sup> Qiang Li,<sup>(4)</sup> and M. Suenaga<sup>(4)</sup>

<sup>(1)</sup>*Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, Maryland 21218*

<sup>(2)</sup>*Theoretical Division, MS B262, Los Alamos National Laboratory, Los Alamos, New Mexico 87545*

<sup>(3)</sup>*Max-Planck-Institut, High-Field Magnetlabor, 38042 Grenoble, France*

<sup>(4)</sup>*Division of Materials Sciences, Brookhaven National Laboratory, Upton, New York 11973*

(Received 26 May 1992)

**Algebraic Fermi Liquid from Phase Fluctuations: “Topological” Fermions, Vortex “Berryons,”  
and QED<sub>3</sub> Theory of Cuprate Superconductors**

M. Franz and Z. Tešanović

*Institute for Theoretical Physics, University of California, Santa Barbara, California 93106*

(Received 26 December 2000; published 3 December 2001)

*d*-wave duality and its reflections in  
high-temperature superconductors

ZLATKO TEŠANOVIĆ

Department of Physics and Astronomy, Johns Hopkins University, Baltimore, Maryland 21218, USA

e-mail: zbt@pha.jhu.edu

Multiband magnetism and superconductivity in Fe-based compounds  
Cvetkovic, V.; Tesanovic, Z., Eur. Phys. Letters (2009)

A BCS-like gap in the superconductor  $\text{SmFeAsO}(0.85)\text{F}(0.15)$   
Chen, T. Y.; Tesanovic, Z.; Liu, R. H.; et al., Nature (2008)

Quantum transport and surface scattering  
Tesanovic, Z; Jaric, MV; Maekawa, S, Phys. Rev. Lett. (1986)

Critical fluctuations in the thermodynamics of quasi-2-dimensional type-II superconductors  
Tesanovic, Z; Xing, L; Bulaevskii, L. et al., Phys. Rev. Lett. (1992)

Berry phase theory of the anomalous Hall effect:  
Application to colossal magnetoresistance manganites  
Ye, JW; Kim, YB; Millis, AJ; et al., Phys. Rev. Lett. (1999)

Self-consistent electronic structure of a  $d(x^2-y^2)$  and a  $d(x^2-y^2)+id(xy)$  vortex  
Franz, M; Tesanovic, Z, Phys. Rev. Lett. (1998)

Algebraic Fermi liquid from phase fluctuations: "Topological" fermions,  
vortex "Berryons," and QED(3) theory of cuprate superconductors  
Franz, M; Tesanovic, Z, Phys. Rev. Lett. (2001)



Theoretical aspects of superconductivity in very high magnetic fields  
Rasolt, M; Tesanovic, Z, Rev. Mod. Phys. (1992)

Collective excitations in a doped antiferromagnet  
Singh, A; Tesanovic, Z, Phys. Rev. B (1990)

Quasiparticles in the vortex lattice of unconventional superconductors:  
Bloch waves or Landau levels?  
Franz, M; Tesanovic, Z, Phys. Rev. Lett. (2000)

Thermodynamic scaling functions in the critical region of type-II superconductors  
Tesanovic, Z; Andreev, AV, Phys. Rev. B (1994)

Critical fluctuations in superconductors and the magnetic field penetration depth  
Herbut, IF; Tesanovic, Z, Phys. Rev. Lett. (1996)

d-wave duality and its reflections in high-temperature superconductors  
Tesanovic, Zlatko, Nature Physics (2008)

Y. M. Qiu et al., "Spin Gap and Resonance at the Nesting Wave Vector in Superconducting FeSe<sub>0.4</sub>Te<sub>0.6</sub>", Phys. Rev. Lett. 103, 067008 (2009).

V. Stanev, J. Kang, and Z. Tesanovic, "Spin fluctuation dynamics and multiband superconductivity in iron pnictides", Phys. Rev. B 78, 184509 (2008).

A. Melikyan and Z. Tesanovic, "Model of phase fluctuations in a lattice wave Superconductor: Application to the Cooper-pair charge-density wave in underdoped cuprates", Phys. Rev. B 71, 214511 (2005).

Z. Tesanovic, "Charge modulation, spin response, and dual Hofstadter butterfly in high-T-c cuprates", Phys. Rev. Lett. 93, 217004 (2004).

M. Franz, Z. Tesanovic, and O. Vafek, "QED3 theory of pairing pseudogap in cuprates: From d-wave superconductor to antiferromagnet via an algebraic Fermi liquid", Phys. Rev. B 66, 054535 (2002).

Z. Tesanovic, ``Are iron pnictides new cuprates?``, [Physics 2, 60 \(2009\)](#).

Z. Tesanovic, ``Copper-oxide superconductivity: The mystery and the mystique``, [Nature Physics 7, 283 \(2011\)](#).

J. Kang and Z. Tesanovic, ``Dimer Impurity Scattering, "Reconstructed" Nesting and Density-Wave Diagnostics in Iron Pnictides``, Phys. Rev. B **85**, 220507(R) (2012)

J. Kang and Z. Tesanovic, ``Theory of Valley-Density Wave and Hidden Order in Iron-Pnictides``, Phys. Rev. B **83**, 020505(R) (2011)

P. Nikolic and Z. Tesanovic, ``Cooper pair insulators and theory of correlated superconductors``, Phys. Rev. B **83**, 064501 (2011)

V. Stanev, B. S. Alexandrov, P. Nikolic, and Z. Tesanovic, ``Robust accidental nodes and zeroes and critical quasiparticle scaling in iron-based multiband superconductors``, Phys. Rev. B **84**, 014505 (2011)

J. M. Murray and Z. Tesanovic, ``Large D-2 Theory of Superconducting Fluctuations in a Magnetic Field and Its Application to Iron-Pnictides``, Phys. Rev. Lett. **105**, 037006 (2010)

V. Stanev and Z. Tesanovic, ``Three-band superconductivity and time-reversal symmetry breaking order parameter``, Phys. Rev. B **81**, 134522 (2010)

