Dr. Ionel Ţifrea
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CURRICULUM VITAE

RESEARCH INTERESTS: Theoretical problems related to the physics of nanoscale structures and to the physics of strongly correlated electron systems.

EDUCATIONAL BACKGROUND:

October 1998	**Ph. D.**, Theoretical Condensed Matter Physics "Babeş-Bolyai" University (Cluj, Romania)
1995-1996	**M. S.**, Theoretical Physics, "Babeş-Bolyai" University (Cluj, Romania)
1990-1995	**B. S.**, "Babeş-Bolyai" University (Cluj, Romania)

PROFESSIONAL EXPERIENCE:

2014-Present	Professor of Physics Department of Physics, California State University, Fullerton
2010-2014	Associate Professor of Physics Department of Physics, California State University, Fullerton
2006-2010	Assistant Professor of Physics Department of Physics, California State University, Fullerton
2002-2006	Associate Professor of Physics Department of Theoretical Physics, "Babeş-Bolyai" University, Romania
2004-2006	Adjunct Professor of Physics Department of Physics and Astronomy, The University of Iowa, USA
2001-2004	Postdoctoral Scholar Department of Physics and Astronomy, The University of Iowa, USA
2000-2001	Research Associate Department of Physics and Astronomy, Clemson University, USA
1999-2000	Visiting Researcher Department of Mathematics and Physics, University of Camerino, Italy
1999-2002	Assistant Professor of Physics Department of Theoretical Physics, "Babeş-Bolyai" University, Romania

TEACHING EXPERIENCE:

California State University, Fullerton: PHYS120 *Introduction to Astronomy*, PHYS211 *Elementary Physics*, PHYS225 *Mechanics*, PHYS226 *Electricity and Magnetism*, PHYS227 *Waves, Optics, and Modern Physics*, PHYS320 *Classical Mechanics*, PHYS340 *Modern Physics*, PHYS416/516 *Statistical Physics*, PHYS454/554 *Solid State Physics*, PHYS455/555A *Quantum Mechanics*, PHYS555B *Quantum Mechanics II*, PHYS510 *Mathematical Physics*, PHYS520 *Analytical Mechanics*, HIST331 *History of Science: Copernicus to the Present*, PHYS499 *Independent Study*, PHYS597 *Graduate Project*, PHYS599 *Independent Graduate Research*

The University of Iowa: *Materials and Devices* (electrical engineering undergraduate students), *Statistical Mechanics* (physics graduate students), *Electricity and Magnetism* (physics undergraduate students), *Solid State Physics* (substitute instructor-physics graduate students)

"Babeş-Bolyai" University: *Statistical Physics* (physics undergraduate students), *Condensed Matter Theory* (physics undergraduate students), *Quantum mechanics* (physics undergraduate students), *Theoretical Physics* (chemistry undergraduate students)

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SERVICE:
Department Chair: (2017 - present).
Graduate Advisor: Masters Program in Physics (2007 - present).
Committees: *Physics Department:* Graduate Committee (2006-2007), Search Committee (2007-2008; 2011-2012, 2013-2014), Curriculum Committee (2006-2010), Resource Committee (2008), Department Personnel Committee (2013-2014, 2014-2015)
College of NSM: Careers and Internships Committee (2011-2012), Research Committee (2007), Curriculum Committee (2008 - 2011)
CSUF: University Heights Housing Association Committee (2009 - 2014).

AWARDS AND SCHOLARSHIPS:

- "FACULTY ACHIEVEMENT AWARD" (2016 & 2010), Department of Physics, CSUF
- "VISITING PROFESSOR" (August 2009), Kaiserslautern University (Germany).
- "KITP SCHOLAR" (2007-2009), Kavli Institute for Theoretical Physics, University of California Santa Barbara.
- "REGULAR ASSOCIATE" (2006-2007), The "Abdus Salam" International Center for Theoretical Physics, Italy.
- "STEFAN PROCOPIU" Award for Theoretical Physics presented by the Romanian National Academy of Science (December 2005).
- "IN HOC SIGNO VINCES" Award presented by the Romanian National University Research Council (NURC) to the best Romanian junior researcher in the fields of Mathematics and Natural Sciences (May 2005).
- "JUNIOR ASSOCIATE" (1999-2004), The "Abdus Salam" International Center for Theoretical Physics, Italy.

SCIENTIFIC PUBLICATIONS: 90 published articles in refereed journals; one chapter in a NATO ASI Proceedings.

LIST OF PUBLICATIONS

90. Thermoelectric transport in a spinorbit mesoscopic interferometer *Physica E* **155**, 115815 (2024) (I. Grosu, and I. Tifrea)
89. Thermoelectric transport properties of single quantum dot systems in the presence of Majorana states *Physica E* **145**, 115503 (2023) (I. Grosu I. Tifrea)
88. Inter-orbital hopping effects on the superconducting state properties of a two-band BCS model *European Physical Journal B* **96**:104 (2023) (J.J. Rodriguez-Nunez, A. A. Schmidt, and I. Tifrea)
87. Reentrant superconductivity due to inter-band off-diagonal hopping in a two-band superconductivity model *European Physical Journal B* **95**:179 (2022) (J.J. Rodriguez-Nunez, A. A. Schmidt, and I. Tifrea)

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86. Magnetic field effects on the thermoelectric properties of monolayer graphene *Physica E* **124**, 114361 (2020) (M. Crisan, I. Grosu, and I. Tifrea)
85. Graphene transport in a parallel magnetic field: Spin polarization effects at finite temperature *Physica E* **114**, 113612 (2019) (M. Crisan, I. Grosu, and I. Tifrea)
84. Thermoelectric transport properties in graphene connected molecular junctions *Physica E* **96**, 1 (2018) (S.T. Rodriguez, M. Crisan, I. Grosu, and I. Tifrea)
83. NMR parameters in gapped graphene systems, *European Physical Journal B* 89, 140 (2016) (M. Crisan, I. Grosu, and I. Tifrea)
82. An equation of motion analysis of the two stage Kondo effect in T-shaped double-quantum-dot systems, *Physica E* **66**, 245 (2015) (M. Crisan, I. Grosu, and I. Tifrea)
81. Thermoelectric transport properties of a T-shaped double quantum dot system in the Coulomb blockade regime, *European Physical Journal B* 87, 302 (2014) (A. L. Monteros, G. S. Uppal, S. R. McMillan, M. Crisan, and I. Tifrea)
80. Nuclear Spin Diffusion Effects in Optically Pumped Quantum Wells, *European Physical Journal B* **87**, 17 (2014) (Daniel Henriksen, Kim Tom, and I. Tifrea)
79. Electronic transport of a T-shaped double-quantum-dot system in the Coulomb blockade regime *European Physical Journal B* **86**, 102 (2013) (I. Tifrea, M. Crisan, G. Pal and I. Grosu)
78. Nuclear Spin Dynamics in Semiconductor Nanostructures, *invited paper in Spintronics IV, Proc. of SPIE* Vol. 8100, 81000K (2011) (Editors H.-J. M. Drouhin, J.-E. Wegrowe, and M. Razeghi) (I. Tifrea).
77. Nonequilibrium nuclear polarization and induced hyperfine and dipolar magnetic fields in semiconductor nanostructures, *Physical Review B* **84**, 155319 (2011) (I. Tifrea, and M. E. Flatté).
76. Superconductivity in itinerant ferromagnetic systems, *Journal of Superconductivity and Novel Magnetism* **24**, 2091 (2011) (A.A. Diaz, J.J. Rodriguez-Nunez, A. A. Schmidt, and I. Tifrea)
75. Electronic Green's functions in a multi-quantum dot T-shaped system, *Physica E* **43**, 1887 (2011) (I. Tifrea, G. Pal, and M. Crisan).
74. Collective modes of a bilayer double parabolic quantum well spin polarized electron gas, *Physica Status Solidi C* **8**, 2589 (2011) (C. Campbell and I. Tifrea) (4^{th} ICOOPMA, Budapest, Hungary).
73. Evidence of quantum interference in transport properties of a triple quantum dot T-shape system, *European Physical Journal B* **79**, 455 (2011) (I. Tifrea, M. Crisan, and I. Grosu).
72. Universality of the conductance in quantum dot transport, *Journal of Superconductivity and Novel Magnetism* **23**, 1401 (2010) (M. Crisan, I. Grosu, and I. Tifrea).
71. Transport and current noise characteristics of a T-shape double quantum dot system, *Journal of Physics: Condensed Matter* **21**, 215604 (2009) (K. Brown, M. Crisan, and I. Tifrea).
70. Fano interferences in the transport properties of triple quantum dot T-shaped systems, *Journal of Physics: Conference Series* **150**, 022087 (2009) (I. Tifrea, M. Crisan, and I. Grosu) (LT 25, Amsterdam, The Netherlands 2008).
69. Knight shifts in semiconductor nanostructures, *Physica E* **40**, 1085 (2008) (I. Tifrea) (EP2DS, Genoa, Italy 2007).
68. Pseudogap Transition in T-shaped Double Dots, *Journal of Superconductivity and Novel Magnetism* **21**, 75 (2008) (M. Crisan, I. Grosu, and I. Tifrea).
67. Metallic glass in two dimensional disordered Bose systems; A renormalization group approach, *Journal of Superconductivity and Novel Magnetism* **21**, 51 (2008) (M. Crisan, I. Grosu, D. Bodea, and I. Tifrea).

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66. Zero temperature conductance of parallel T-shape double quantum dots, *Physica E* **39**, 214 (2007) (M. Crisan, I. Grosu, and I. Tifrea).
65. Quantum Critical Proximity of the One-Dimensional Ferromagnetic Phase, *Journal of Superconductivity and Novel Magnetism* **20**, 273 (2007) (M. Crisan, I. Grosu, and I. Tifrea)
64. Three-dimensional dilute Bose liquid at finite temperature: a Renormalization Group approach, *Physics and Chemistry of Liquids* **45**, 7 (2007) (M. Crisan, M. Trif, I. Grosu, and I. Tifrea)
63. Large n–expansion limit of the three dimensional ferromagnetic quantum phase transition, *Journal of Low Temperature Physics* **146**, 315 (2007) (D. Bodea, M. Crisan, I. Grosu, and I. Tifrea)
62. Field-induced Bose-Einstein condensation of interacting dilute magnons in three-dimensional spin systems: A renormalization-group study, *Physical Review B* **72**, 184414 (2005) (M. Crisan, I. Tifrea, D. Bodea, and I. Grosu))
61. Evidence for a metallic–like state in the $T = 0$ K phase diagram of a high temperature superconductor, *European Physical Journal B* **46**, 187 (2005) (A.A. Schmidt, J.J. Rodriguez-Nunez, and I. Tifrea)
60. Excitonic condensation in quasi-two-dimensional systems, *Physics Letters A* **346**, 310 (2005) (M. Crisan and I. Tifrea)
59. Magnetic fields from nuclear polarization in parabolic quantum wells, *Journal of Superconductivity* **18**, 207 (2005) (I. Tifrea and M. E. Flatté) (PASPS III, Santa Barbara, USA 2004).
58. Nuclear spin dynamics in parabolic quantum wells, *Physical Review B* **69**, 115305 (2004) (I. Tifrea and M. E. Flatté)
57. Low temperature behavior of a two dimensional quantum antiferromagnet, *Journal of Superconductivity* **17**, 503 (2004) (M. Crisan, I. Grosu, I. Tifrea, and D. Bodea)
56. Quantum critical ferromagnetism in Ni_xPd_{1-x} alloys, *Journal of Low Temperature Physics* **137**, 105 (2004) (D. Bodea, M. Crisan, I. Grosu, and I. Tifrea)
55. Fluctuation conductivity in layered d-wave superconductors near critical disorder, *European Physical Journal B* **36**, 377 (2003) (I. Tifrea, D. Bodea, I. Grosu, and M. Crisan)
54. Thermodynamic properties of high temperature superconductors in the pseudogap regime, *Journal of Superconductivity* **16**, 993 (2003) (I. Tifrea)
53. Specific heat behavior of high temperature superconductors in the pseudogap regime, *European Physical Journal B* **35**, 33 (2003) (I. Tifrea and C. P. Moca)
52. Electric field tunability of nuclear and electronic spin dynamics due to the hyperfine interaction in semiconductor nanostructures, *Physical Review Letters* **90**, 237601 (2003) (I. Tifrea and M. E. Flatté)
51. Quantum Phase Transitions and Renormalization Group Approach, *Romanian Journal of Physics* **48**, 597 (2003) (M. Crisan, I. Grosu, D. Bodea, and I. Tifrea) (Conferinta Nationala de Fizica Teoretica, Bucuresti, Romania 2003).
50. Ginzburg-Landau functional for metals with spin-charge separation: effect of the mass renormalization, *Acta Physica Polonica B* **34**, 383 (2003) (J.A. Budagosky Marcilla, J.J. Rodríguez–Núñez, and I. Tifrea) (SCES 2002, Kraków, Poland 2002)
49. Ginzburg-Landau Expansion in Non-Fermi Liquid Superconductors: Effect of the Mass Renormalization Factor, *Physical Review B* **66**, 104507 (2002) (I. Tifrea, J.A. Budagosky Marcilla, and J.J. Rodríguez–Núñez)
48. Non-Fermi behavior near a quantum phase transition driven by disorder, *Journal of Superconductivity* **15**, 271 (2002) (D. Bodea, M. Crisan, I. Grosu, and I. Tifrea)

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47. Collective modes of a bilayer quasi-two-dimensional spin polarized electron gas, *Physica E* **15**, 13 (2002) (I. Tifrea and D. C. Marinescu)
46. Pseudogap influence on the $2\Delta(0)/T_c$ ratio in d-wave superconductors, *Physica C* **371**, 104 (2002) (I. Tifrea, I. Grosu, and M. Crisan)
45. Charge and spin collective excitations in a coupled spin-polarized bilayer system, *Physical Review B* **65**, 125316 (2002) (I. Tifrea and D.C. Marinescu)
44. Thermodynamic limits of the local field corrections in a spin-polarized electron system, *Physical Review B* **65**, 113201 (2002) (D.C. Marinescu and I. Tifrea)
43. Renormalization-group analysis of dilute Bose system in d dimension at finite temperature, *Journal of Physics A: Mathematical and General* **35**, 239 (2002) (M. Crisan, D. Bodea, I. Grosu, and I. Tifrea)
42. Critical behavior of a two-dimensional dilute Bose gas, *Modern Physics Letters B* **15**, 837 (2001) (M. Crisan, I. Tifrea, D. Bodea, and I. Grosu)
41. Bose-Einstein condensation in layered systems under repulsive interaction, *Journal of Superconductivity* **14**, 563, (2001) (I. Tifrea and I. Grosu)
40. Non-Fermi behavior of the itinerant-electron ferromagnet near the quantum phase transition point, *Journal of Superconductivity* **14**, 421 (2001) (D. Bodea, I. Tifrea, and M. Crisan)
39. Magnetic instability of a two dimensional Anderson non-Fermi liquid, *Journal of Magnetism and Magnetic Materials* **233**, 205 (2001) (I. Tifrea, I. Grosu, and M. Crisan)
38. Two-dimensional dilute Bose gas in the normal phase, *European Physical Journal B* **22**, 79 (2001) (P. Pieri, G.C. Strinati, and I. Tifrea)
37. Magneto-acoustic plasmons in a bilayer quasi two-dimensional spin-polarized system, *Physical Review B* **64**, 073405 (2001) (I. Tifrea and D.C. Marinescu)
36. Detecting phase transitions from the high-temperature phase in systems with a small parameter, *Physical Review B* **64**, 052104 (2001) (P. Pieri, G.C. Strinati, and I. Tifrea)
35. Fluctuation contribution to the specific heat in non-Fermi models for superconductivity, *International Journal of Modern Physics B* **14**, 2988 (2000) (I. Tifrea, I. Grosu, and M. Crisan) (SATT X, Frascati, Italy 2000)
34. Specific heat behavior near the Lifshitz point, *Physica C* **341-348**, 267 (2000) (C.P. Moca, I. Tifrea, and M. Crisan) (M2S-HTCS-VI, Houston, USA 2000)
33. From BCS to Bose-Einstein condensation in a non-Fermi superconductor, *Physica C* **341-348**, 157 (2000) (I. Tifrea, C.P. Moca, and M. Crisan) (M2S-HTCS-VI, Houston, USA 2000)
32. Fluctuation contribution to the specific heat in non-Fermi models for superconductivity, *Physica C* **340**, 161 (2000) (I. Tifrea, I. Grosu, and M. Crisan)
31. Some sum rules for non-Fermi liquids: Aplications taking into account the mass renormalization factor, *Physical Review B* **62**, 4026 (2000) (J.J. Rodriguez-Nunez, I. Tifrea, and S.G. Magalhaes)
30. An analytical approach for the pseudo-gap in the spin fluctuation model, *Journal of Superconductivity* **13**, 411 (2000) (C.P. Moca, I. Tifrea, and M. Crisan)
29. Renormalization group approach of itinerant electron systems near the Lifshitz point, *Physical Review B* **61**, 3247 (2000) (C.P. Moca, I. Tifrea, and M. Crisan)
28. Two dimensional d-waves superconductivity, *Journal of Superconductivity* **13**, 89 (2000) (M. Crisan, I. Tifrea, and I. Grosu)
27. $2\Delta(0)/T_c$ ratio in d-wave superconductors, *Physica B* **259-261**, 464 (1999) (I. Tifrea, I. Grosu, and M. Crisan)(SCES '98 Paris, France 1998)

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26. Virtual bound states in d-wave van Hove superconductors, *Physica B* **259-261**, 462 (1999) (M. Crisan and I. Tifrea)(SCES '98 Paris, France 1998)
25. Marginal Fermi liquid model for high-T_c superconductors, *Studia UBB Seria Physica* **XLIV**, 2, (1999) (D. Bodea, I. Tifrea, I. Grosu, and M. Crisan)
24. Electron-fluctuation interaction in a non-Fermi liquid superconductor, *Physical Review B* **59**, 14680 (1999) (M. Crisan, C.P. Moca, and I. Tifrea)
23. Flow equations for the model of hybridized bosons and fermions, *Journal of Superconductivity* **12**, 399 (1999) (C.P. Moca, I. Tifrea, and M. Crisan)
22. Critical temperature of a van Hove superconductor with spin-charge separation, *Physica C* **311**, 310 (1999) (M. Crisan and I. Tifrea)
21. The superconductivity state induced by spin-wave exchange, *Journal of Superconductivity* **11**, 723 (1998) (C.P. Moca, I. Tifrea, and M. Crisan)
20. Flow equation method for a superconductor with magnetic correlations, *Journal of Superconductivity* **11**, 719 (1998) (C.P. Moca, M. Crisan, and I. Tifrea)
19. Nonmagnetic impurities in d-wave pairing superconductors, *Journal of Superconductivity* **11**, 699 (1998) (M. Crisan, M.M. Pop, I. Tifrea, and S. Simon)
18. Effects of finite impurity concentration in van Hove superconductors, *Physical Review B* **58**, 2448 (1998) (I. Tifrea and M. Crisan)
17. Specific heat jump in non-Fermi superconductors, *European Physical Journal B* **4**, 175 (1998) (I. Tifrea and M. Crisan)
16. Critical temperature and Coulomb repulsion in a non-Fermi liquid superconductor, *Physica C* **296**, 91 (1998) (I. Tifrea, I. Grosu, and M. Crisan)
15. Optical conductivity in the van Hove scenario, *Journal of Superconductivity* **11**, 277 (1998) (I. Tifrea and M. Crisan)
14. Superconductivity and critical coupling in non-Fermi liquids, *Journal of Superconductivity* **11**, 339 (1998) (I. Grosu, I. Tifrea, and M. Crisan)
13. Crossover from Cooper pairing to Bose condensation in a van Hove superconductor with localized states, *Journal of Superconductivity* **11**, 265 (1998) (I. Tifrea and M. Crisan)
12. Critical temperature of a non-Fermi liquid superconductor with an energy dependent density of states, *Physical Review B* **56**, 8298 (1997) (I. Grosu, I. Tifrea, M. Crisan, and S. Yoksan)
11. Pair-breaking effect in a van Hove superconductor, *Journal of Superconductivity* **10**, 503 (1997) (I. Tifrea, M. Crisan, and S. Yoksan)
10. Flow-equation method for the single impurity in a 2D superconductor, *Journal of Superconductivity* **10**, 251 (1997)(M. Crisan, C.P. Moca, and I. Tifrea)
9. Crossover between weak and strong coupling in 2D superconductors, *Journal of Superconductivity* **10**, 199 (1997) (M. Crisan and I. Tifrea)
8. Effects of the electron-phonon interaction on the critical temperature of a layered two-dimensional superconductor, *Journal of Superconductivity* **10**, 121 (1997) (I. Tifrea and M. Crisan)
7. Impurity states in van Hove superconductors, *Journal of Superconductivity* **10**, 127 (1997) (I. Tifrea and M. Crisan)
6. Magnetic susceptibility in the Millis-Monien-Pines model, *Physical Review B* **55**, 5998 (1997) (I. Tifrea, M. Crisan, and I. Grosu)
5. Classical spins in van Hove superconductors, *Physical Review B* **54**, 14946 (1996) (I. Tifrea and M. Crisan)

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4. Magnetic susceptibility of a disorder high temperature superconductor, *Modern Physics Letters B* **14**, 635 (1996) (I. Grosu, M. Crisan, and I. Tifrea)
3. Damping of quasiparticles in a layered two-dimensional electron gas; influence of electron-phonon and electron-electron interaction, *Journal of Superconductivity* **9**, 475 (1996) (I. Tifrea and M. Crisan)
2. Critical temperature for a layered superconductor containing non-magnetic impurities, *Journal of Superconductivity* **9**, 187 (1996) (M. Crisan, I. Tifrea, and L. Tataru)
1. Marginal behaviour of a layered two-dimensional electron gas interacting with localised spin, *Journal of Superconductivity* **8**, 169 (1995) (M. Crisan, I. Tifrea, and L. Tataru)