

# List of published papers

## Zsolt Gulácsi

1. Zs. Gulácsi, M. Popescu, I. Rus: The magnetic Properties of the  $Ho_2Fe_{12-x}Al_x$  compounds, *Studia Univ. Babeş–Bolyai Cluj*, 23, 63 (1978).
2. M. Crisan, Zs. Gulácsi: Nuclear spin–lattice relaxation in the itinerant–electron antiferromagnet, 'Topics in Theoretical Physics' c. könyv 2. kötet, 173.o., 1979, Eds. Central Research Institute of Physics, Bucuresti.
3. D.Dadarlat, Zs. Gulácsi: Effect of magnetic impurities on the Neel temperature of Cr, *Physica Status Solidi*, B98, 105, (1980).
4. Al. Anghel, D. Dadarlat, Zs. Gulácsi: On the phase diagram of the impure excitonic ferromagnet, *Solid State Communications*, 35, 983, (1980).
5. M. Crisan, Zs. Gulácsi: Strong coupling theory of the charge–density wave state, *Jour. Low Temp. Phys.*, 44, 399, (1980).
6. M. Crisan, Al. Anghel, Zs. Gulácsi: Theory of magnetoelectrical effect for the itinerant–electron antiferromagnet, *Jour. Magn. Magn. Matter.*, 23, 23, (1981).
7. M. Crisan, Zs. Gulácsi: Superconductivity in Spin–glasses, *Zeitschrift fur Physik*, B42, 305, (1981).
8. M. Crisan, Zs. Gulácsi, Al. Anghel: The phase diagram of the antiferromagnetic superconductors, *Physica*, 108B, 1049, (1981).
9. M. Crisan, Al. Anghel, Zs. Gulácsi: The influence of the disordered ferromagnetism on the superconductivity, *Physica*, 108B, 1239, (1981).
10. Zs. Gulácsi, M. Crisan: Coexistence of the itinerant–electron antiferromagnetism and the spin–glasses, *Jour. Magn. Magn. Matter.*, 24, 141, (1981).
11. M. Crisan, Zs. Gulácsi, Al. Anghel: The influence of the short–range ferromagnetic order on the itinerant–electron antiferromagnetism, *Jour. Magn. Magn. Matter.*, 25, 165, (1981).
12. M. Crisan, Al. Anghel, Zs. Gulácsi: Theory of orbital ferromagnetism in two band systems, *Phys. Rev.* B24, 2603, (1981).
13. A. Giurgiu, I. Pop, M. Popescu, Zs. Gulácsi: Spin–Glass like behaviour of dilute Cr–Er and Cr–Yb alloys, *Phys. Rev.* B24, 1350, (1981).

14. M. Crisan, Zs. Gulácsi: The nuclear relaxation rate  $T_1^{-1}$  for the itinerant-electron antiferromagnet, *Canad. Jour. of Physics*, 60, 649, (1982).
15. M. Gulácsi, Zs. Gulácsi, M. Crisan: Spin-Glass state with short-range interactions in a superconductor, *Jour. Low Temp. Physics*, 50, 371, (1983).
16. M. Crisan, Zs. Gulácsi, M. Gulácsi: Spin-Glass with short-range interactions induced by an electromagnetic field in semiconductors. I. Low temperatures domain, *Jour. Magn. Magn. Matter.*, 36, 47, (1983).
17. M. Crisan, Zs. Gulácsi, M. Gulácsi: Spin-Glass with short-range interactions induced by an electromagnetic field in semiconductors. II. High temperatures domain, *Jour. Magn. Magn. Matter.*, 38, 67, (1983).
18. Zs. Gulácsi, M. Gulácsi, M. Crisan: The spin-glass phase in spin-density wave medium, *Studia Univ. Babes-Bolyai Cluj*, 28, 66, (1983).
19. Zs. Gulácsi, M. Crisan, M. Gulácsi, Al. Anghel: Metastability regions in spin-glasses, *Jour. Magn. Magn. Matter.*, 37, 58, (1983).
20. Zs. Gulácsi, M. Gulácsi, M. Crisan: Short-range spin-glass model with discrete bonds, *Phys. Rev.* B27, 5747, (1983).
21. M. Gulácsi, M. Crisan, Zs. Gulácsi: Theory of coexistence between charge-density wave, spin-density wave and ferromagnetism, *Jour. Magn. Magn. Matter.*, 39, 290, (1983).
22. M. Crisan, Zs. Gulácsi, M. Gulácsi: Magnetic susceptibility of the spin-glass with the itinerant-electron antiferromagnet as a host, *Canad. Jour. of Physics*, 61, 1599, (1983).
23. Zs. Gulácsi, M. Crisan, M. Gulácsi, Al. Anghel: Metastability in spin-glasses, *Phys. Rev.*, B28, 6476, (1983).
24. Zs. Gulácsi, M. Gulácsi, M. Crisan: A possible mechanism for the short-range spin-glass state in insulators, *Jour. Magn. Magn. Matter.*, 40, 247, (1984).
25. V. Tosa, I. Deac, P. Mercea, Zs. Gulácsi: Multiphoton absorption study of the  $SF_6$  molecules as function of the initial rotation state, *Jour. Molec. Structure*, 115, 469, (1984).
26. M. Gulácsi, Zs. Gulácsi, M. Crisan: The superconducting transition temperature for  $La_{1-x}Gd_x$ , *Jour. Low Temp. Phys.*, 60, 19, (1985).
27. M. Gulácsi, Zs. Gulácsi: Model to study a possible superconducting phase in heavy-fermion systems and its NMR signal, *Solid State Communic.*, 56, 1059, (1985).

28. V. Tosa, I. Deac, P. Mercea, Zs. Gulácsi: Computer simulation of the multiphoton excitation of  $SF_6$  molecules cooled by pulsed supersonic expansion, Applied Physics, B36, 55, (1985).
29. M. Crisan, M. Gulácsi, Zs. Gulácsi: The phase diagram of a ferromagnetic superconductor in the mixed state, Low Temp. Phys. 17, 85, (1985).
30. M. Crisan, M. Gulácsi Zs. Gulácsi: Spin-flip scattering in spin-glass superconductors, Low Temp. Phys. 17, 1065, (1985).
31. M. Gulácsi, Zs. Gulácsi: Phonon mediated spin-glass behaviour in  $ZnCr_{1.6}Ca_{0.4}O_4$ , 'Phonon Physics', pg.51., (1985), World Scientific, Eds: J. Kollár, N. Kroo, N. Menyhard, T. Siklós.
32. M. Gulácsi, Zs. Gulácsi, V. Tosa: The eigenvalues spectra of octahedral invariant tensor operator combinations up to eighth rank, Jour. of Molecular Spectroscopy, 118, 424, (1986).
33. M. Gulácsi, Zs. Gulácsi, V. Tosa: Study of the rotational splitting of the  $UF_6$  molecules, Jour. Molec. Structure, 142, 83, (1986).
34. Zs. Gulácsi, V. Tosa, M. Gulácsi: A comparative Study of  $CH_4$  and  $CD_4$  rotational splitting using high order invariant tensor operators, Jour. Molec. Structure, 142, 87, (1986).
35. Zs. Gulácsi, M. Gulácsi: Restrictions concerning the internal field distributions in spin-glasses, Jour. of Physics, A19, 2123, (1986).
36. M. Gulácsi, Zs. Gulácsi: Superconductivity in mixed valence systems, Jour. of Low Temp. Phys. 63, 549, (1986).
37. M. Gulácsi, Zs. Gulácsi: Internal field distributions in spin-glasses with dipolar interactions, Phys. Rev. B33, 3483, (1986).
38. M. Gulácsi, Zs. Gulácsi: Theory of coexistence between itinerant-electron antiferromagnetism and superconductivity, Phys. Rev. B33, 6147, (1986).
39. V. Tosa, M. Gulácsi, Zs. Gulácsi: Rotational Splitting of  $CH_4$  molecules, analysed with irreducible invariant tensor operators, Studia Univ. Babes-Bolyai, 32, 82, (1987).
40. M. Gulácsi, Zs. Gulácsi, V. Tosa: Anharmonic force field constants for  $UF_6$  molecules, Studia Univ. Babes-Bolyai, 32, 85, (1987).
41. Zs. Gulácsi, V. Tosa, M. Gulácsi: Tabulated  $T_s$  eigenvalues for cubic symmetry, Studia Univ. Babes-Bolyai, 32, 88, (1987).

42. Zs. Gulácsi, M. Gulácsi: Spin–density waves in heavy–fermion compounds: A theoretical study, Phys. Rev. B36, 699, (1987).
43. M. Gulácsi, Zs. Gulácsi: Theoretical description of the spin–density waves in heavy–fermion systems, Phys. Rev. B36, 748, (1987).
44. M. Gulácsi, Zs. Gulácsi: Charge density waves in heavy–fermion systems, Solid State Communic., 64, 1075, (1987).
45. Zs. Gulácsi, M. Gulácsi, I. Pop: Enhancement of the superconducting critical temperature in layered compounds, Phys. Rev. B37, 2247, (1988).
46. P. Mercea, V. Tosa, Zs. Gulácsi: Statistical Thermodynamic Properties of  $XY_6$  molecules, Rev. Roum. de Physique, 33, 289, (1988).
47. M. Gulácsi, Zs. Gulácsi: Complete symmetry functions for anisotropic spin–density waves, Jour. Magn. Magn. Matter., 76-77, 83, (1988).
48. Zs. Gulácsi, M. Gulácsi, V. Tosa: Superconductivity and spin–density waves in heavy–fermion systems, Jour. Magn. Magn. Matter., 76-77, 516, (1988).
49. Zs. Gulácsi, M. Gulácsi: Superconductivity and impurities in layered systems, International Jour. of Modern Physics, B1, 1107, (1988).
50. M. Gulácsi, Zs. Gulácsi: Reformulation of the pairing theory, International Jour. of Modern Physics, B1, 1101, (1988).
51. I. Ursu, M. Bogdan, F. Balibanu, Zs. Gulácsi, M. Gulácsi, V. Tosa, D. Demco: Quadrupolar spin–relaxation mechanisms for  $U^{235}$  in liquid  $UF_6$ , Canad. Jour. of Phys., 67, 52, (1989).
52. M. Gulácsi, Zs. Gulácsi:  $T_c$  enhancement in superconductor and spin–density wave coexistence, Phys. Rev. B39, 714, (1989).
53. M. Gulácsi, Zs. Gulácsi: Superconductivity and spin–density wave in heavy–fermion systems, Phys. Rev. B39, 12352, (1989).
54. Zs. Gulácsi, M. Gulácsi: In–plane impurities in superconducting layered systems, Phys. Rev. B40, 708, (1989).
55. M. Gulácsi, Zs. Gulácsi: Bound electron pairs in the presence of charge confinement, Phys. Rev. B42, 3981, (1990).
56. Zs. Gulácsi, M. Gulácsi: Analytic description of the Hubbard model in D–dimensions with the Gutzwiller wave function, Phys. Rev. B44, 1475, (1991).

57. Zs. Gulácsi, M. Gulácsi, B. Jankó: High-order perturbation expansion for the two-dimensional Hubbard model using the Gutzwiller wave function, Phys. Rev. B47, 4168, (1993).
58. Zs. Gulácsi, R. Starck, D. Vollhardt: Accurate Variational Results for the Symmetric Periodic Anderson Model in  $d=1,2,3$  Dimensions, Phys. Rev. B47, 8594, (1993).
59. M. Gulácsi, Zs. Gulácsi: BCS superconductivity in a mixed valence compound, Solid State Communic. 90, 51, (1994).
60. Zs. Gulácsi, M. Gulácsi: Diagrammatic Expansion of  $\Phi^4$  Theory and Lattice Models up to eighth order, Phil. Mag. B69, 437, (1994).
61. Zs. Gulácsi, M. Gulácsi: Exact Solution for a Chainlike Cluster Growth Model, Phys. Rev. Letters 73, 3239, (1994).
62. M. Gulácsi, A. R. Bishop, Zs. Gulácsi:  $T_c$  enhancement of a two-band superconductor in an itinerant antiferromagnetic medium, Physica C244, 87, (1995).
63. M. Hunyadi, Zs. Gulácsi: Exact Partition and Pair-Correlation Functions for an Ising Model with Mirror-Image type Interactions, Phys. Rev. B53, 2326, (1996).
64. P. Gurin, Zs. Gulácsi: Exact phase diagram for extended Hubbard model in  $D > 1$  dimensions with next-nearest-neighbor interaction terms, Low Temp. Phys. 21, 2643, (1996).
65. Zs. Szabó, Zs. Gulácsi: Superconducting phases of the extended Hubbard model for doped systems, Low Temp. Phys. 21, 609, (1996).
66. Zs. Gulácsi, M. Hunyadi, I. Daruka: Hidden ordering effects in  $D = 1$  dimensional Ising model with Mirror-Image type interactions, Low Temp. Phys. 21, 1911, (1996).
67. Zs. Gulácsi, M. Gulácsi: Solution of a chain-like Ising spin cluster model, Int. Jour. Mod. Phys. B11, 115, (1997).
68. M. Gulácsi, Zs. Gulácsi, Chain-like Ising spin cluster models: exact solutions, in *Exactly solvable models in statistical mechanics: historical perspectives and current status*, eds. C. King and F. Y. Wu, Series on advances in statistical mechanics, Vol. 13, World Scientific, p. 115 - 121, 1997.
69. Zs. Gulácsi: Strongly Correlated systems, Phil. Mag. B76, 695, (1997).

70. P. Gurin, Zs. Gulácsi: Hubbard model with next-nearest-neighbour interaction terms in higher dimensions: new exactly solvable cases, *Phil. Mag.* B76, 827, (1997).
71. Zs. Szabó, Zs. Gulácsi: Possible d-like symmetry pairing states in the extended Hubbard model, *Phil. Mag.* B76, 833, (1997).
72. I. Orlik, Zs. Gulácsi: Exact results related to the periodic Anderson model in the strong-coupling  $U = \infty$  limit, *Phil. Mag.* B76, 845, (1997).
73. Zs. Szabó, Zs. Gulácsi: Superconductivity in the extended Hubbard model with more than nearest-neighbour contributions, *Phil. Mag.* B76, 911-923, (1997).
74. Zs. Gulácsi, M. Gulácsi, Theory of Phase transitions in two-dimensional systems, *Advances in Physics*, 47, 1-89, (1998).
75. P. Gurin, Zs. Gulácsi, Exact results related to the extended Hubbard model with increased interaction range in  $D > 1$  dimensions, *Phil. Mag.* B78, 315, (1998).
76. I. Orlik, Zs. Gulácsi, Exact results related to the periodic Anderson model in  $D > 1$  dimensions, *Phil. Mag. Lett.* 78, 177, (1998).
77. I. Daruka, Zs. Gulácsi, Correlation transitions in the Ising chain with competing short-range and long-range mirror interactions, *Phys. Rev.* E58, 5403, (1998).
78. G. Opposits, Zs. Gulácsi, Exact solution for a chain-like cluster growth model for a finite particle size, *Phil. Mag.* B81, 21, (2001).
79. E. Kovács, Zs. Gulácsi, Unitary transformations used in the study of phase diagram of strongly correlated systems, *Phil. Mag.* B81, 341-358, (2001).
80. P. Gurin, Zs. Gulácsi,  $T \geq 0$  properties of the infinitely repulsive Hubbard model for arbitrary number of holes, *Phil. Mag.* B81, 321-339, (2001).
81. Zs. Gulácsi, Strongly Correlated Systems II., *Phil. Mag.* B81, 1331, (2001).
82. E. Kovács, Zs. Gulácsi, Study of the t-J model in the low density limit, *Phil. Mag.* B81, 1557, (2001).
83. I. Orlik, Zs. Gulácsi, Exact results for the one-dimensional periodic Anderson model at finite  $U$ , *Phil. Mag.* B81, 1587, (2001).
84. P. Gurin, Zs. Gulácsi, The  $U = \infty$  Hubbard model with few holes: Monte Carlo studies near half-filling at non-zero temperatures, *Phil. Mag.* B81, 1621, (2001).

85. Zs. Gulácsi, I. Orlik, New non-Fermi-liquid-type behaviour by a two-band system in normal phase, *Jour. Phys. A. Lett.* A34, L359, (2001).
86. P. Gurin, Zs. Gulácsi, Exact solutions for the periodic Anderson model in two dimensions: A non-Fermi-liquid state in the normal phase, *Phys. Rev.* B64, 045118, (2001) (and *Phys. Rev.* B65, 129901(E), (2002), Erratum).
87. P. Gurin, Zs. Gulácsi, Magnetic properties of the infinitely repulsive Hubbard model near half filling, *Czech. Jour. Phys.* 52, 119, (2002).
88. Zs. Gulácsi, Plaquette operators used in the rigorous study of the ground-states of the periodic Anderson model in  $D = 2$  dimensions, *Phys. Rev.* B66, 165109, (2002).
89. Zs. Gulácsi, Exact ground-state for the periodic Anderson model in  $D = 2$  dimensions at finite value of the interaction and absence of the direct hopping in the correlated f-band, *Europ. Phys. Journal* B30, 295-301, (2002).
90. Zs. Gulácsi, Exact ground-states for the periodic Anderson model in restricted regions of the parameter space, *Acta Phys. Polon.* B34, 749, (2003).
91. Zs. Gulácsi, Dieter Vollhardt, Exact Insulating and Conducting Ground States of a Periodic Anderson Model in Three Dimensions, *Phys. Rev. Lett.* 91, 186401, (2003).
92. Zs. Gulácsi, Exact multi-electronic electron-concentration dependent ground-states for disordered two-dimensional two-band systems in presence of disordered hoppings and finite on-site random interactions, *Phys. Rev.* B69, 054204, (2004).
93. Zs. Gulácsi, Exact ground state for the generic periodic Anderson model around half-filling, *Philos. Mag. Letters* 84, 405, (2004).
94. Zs. Gulácsi, D. Vollhardt, Exact ground states of the periodic Anderson model in  $D = 3$  dimensions, *Phys. Rev.* B72, 075130, (2005).
95. E. Kovács, Zs. Gulácsi, Four electrons in a two-leg Hubbard ladder: Exact ground states, *Jour. of Phys. A.* A38, 10273, (2005).
96. Zs. Gulácsi, M. Gulácsi, Exact stripe, checkerboard, and droplet ground states in two dimensions, *Phys. Rev. B.* B73, 014524, (2006).
97. E. Kovács, Zs. Gulácsi, Exact ground states for the four electron problem in a Hubbard ladder, *Philos. Mag.* 86, 1997, (2006).
98. E. Kovács, Zs. Gulácsi, Exact ground states for the four electron problem in a two-dimensional finite Hubbard system, *Philos. Mag.* 86, 2073, (2006).

99. Zs. Gulácsi, A. Kampf, D. Vollhardt, Exact many-electron ground states on the diamond Hubbard chain, *Phys. Rev. Lett.* 99, 026404, (2007).
100. I. Chalupa, Zs. Gulácsi, Quadratic operators used in deducing exact ground states for correlated systems: ferromagnetism at half filling provided by a dispersive band, *Jour. of Phys.: Condens. Matter.* 19, 386209, (2007).
101. Zs. Gulácsi, Delocalization effect of the Hubbard repulsion in exact terms and two dimensions, *Phys. Rev.* B77, 245113, (2008).
102. Zs. Gulácsi, A. Kampf, D. Vollhardt, Exact many-electron ground states on diamond and triangle Hubbard chains, *Progress of Theoretical Physics Supplement* 176, 1-21, (2008).
103. R. Trencsényi, E. Kovács, Zs. Gulácsi, Correlation and confinement induced itinerant ferromagnetism in chain structures, *Phil. Mag.* 89, 1953, (2009).
104. R. Trencsényi, Zs. Gulácsi, Ferromagnetism without flat bands in thin arm-chair nanoribbons, *Eur. Phys. Jour.* B75, 511, (2010).
105. Zs. Gulácsi, A. Kampf, D. Vollhardt, Route to ferromagnetism in organic polymers, *Phys. Rev. Lett.* 105, 266403, (2010).
106. R. Trencsényi, K. Gulácsi, E. Kovács, Zs. Gulácsi, Exact ground states for polyphenylene type of chains, *Ann. Phys. (Berlin)*, 523, 741, (2011).
107. R. Trencsényi, Zs. Gulácsi, The emergence domain of an exact ground state in a non-integrable system: the case of the polyphenylene type of chains, *Phil. Mag.* 92, 4657, (2012).
108. E. Kovács, Zs. Gulácsi, Exact ground states for quasi 1D systems with Hubbard interaction, *Jour. of Nano and Electronic Phys.* 4, 01004, (2012).
109. Zs. Gulácsi, Exact results for non-integrable systems, *Jour. of Phys. Conf. Ser.* 410, 012011, (2013).
110. E. Kovács, Zs. Gulácsi, Electron pairs in the ground state of chain structures, *Jour. Supercond. and Nov. Magnetism* 26, (5), 1781-1785, (2013).
111. Zs. Gulácsi, Exact ground states of correlated electrons on pentagon chains, *Int. Jour. Mod. Phys.* B27, (4), 1330009, (64 pg), (2013).
112. E. Kovács, R. Trencsényi, Zs. Gulácsi, Magnetic nano-grains from non-magnetic material: a possible explanation, *IOP Conf. Series* 47, 012048 (2013).
113. Zs. Guácsi, M. Gulácsi, Exact results for non-integrable systems: application on pentagon chains in the below system half filling concentration region, *Aditi Journal of Mathematical Physics* 4,(Issue 1-2), 44-76, (2013).



114. M. Gulácsi, Gy. Kovács, Zs. Gulácsi, Exact ferromagnetic ground state of pentagon chains, *Phil. Mag. Lett.* 94, 269-277, (2014).
115. R. Trencsényi, K. Glukhov, Zs. Gulácsi, Exact ground state for the four-electron problem in a 2D finite honeycomb lattice, *Phil. Mag.* 94, 2195-2223, (2014).
116. Zs. Gulácsi, Interaction-created effective flat bands in conducting polymers, *Eur. Phys. Jour. B.* 87, 143, (2014).
117. M. Gulácsi, Gy. Kovács, Zs. Gulácsi, Flat band ferromagnetism without connectivity conditions in the flat band, *Europhysics Lett.* 107, 57005, (2014).
118. M. Gulácsi, Gy. Kovács, Zs. Gulácsi, An extension to flat band ferromagnetism, *Mod. Phys. Lett. B.* 28, 1450220 (2014).
119. Gy. Kovács, K. Glukhov, Zs. Gulácsi, Quadrilateral quantum chain Hamiltonian cast in positive semidefinite form containing non-linear fermionic contributions, *WSEAS Transactions on Applied and Theoretical Mechanics*, 10, 187-193 (2015).
120. Gy. Kovács, Zs. Gulácsi, Pentagon chains in external fields, *Phil. Mag.* 95, 3674-3695 (2015).
121. Zs. Gulácsi, Deducing exact ground states for many-body non-integrable systems, *Int. Jour. Math. Mod. and Meth. in Appl. Sci.* 9, 691-699 (2015).
122. M. Gulácsi, M. A. M. El-Mansy, Zs. Gulácsi, Electron-phonon interactions in conducting polymers, *Phil. Mag. Lett.* 96, (no:2), 67-75 (2016).
123. M. Gulácsi, Zs. Gulácsi, Emergence of ferromagnetism in conducting polymers in the presence of lattice vibrations, *Mod. Phys. Lett. B.* 30 (No:27), 1650335 (10pages) 2016.
124. N. Kucska, Zs. Gulácsi, Exact results relating spin-orbit interactions in two-dimensional strongly correlated systems, *Phil. Mag.* 98 (No:18), 1708-1730 (2018).
125. N. Kucska, Zs. Gulácsi, Itinerant surfaces with spin-orbit couplings, correlations and external magnetic fields: exact results, *Phil. Mag. Lett.* 99 (No:3), 118-125 (2019).