

## Mihai A. GÎRȚU

Researcher-ID page: <http://www.researcherid.com/rid/B-4574-2008>

### A. Chapters in monographs:

- “Hybrid Organic-Inorganic Nanostructured Magnets”,  
**M.A. Gîrțu** and M. Fahlman,  
in *Magnetic Nanostructures*, H.S. Nalwa, ed., 2<sup>nd</sup> ed., American Scientific Publishers, Los Angeles, 2009, pp. 359-433 (ISBN-10 1-58883-145-0, ISBN-13 978-1-58883-145-3).
  - „Wining Youth for Science and Technology – an Educational Challenge”  
V.M. Pomazan, D. Mihalașcu, L.C. Petcu, **M.A. Gîrțu**  
in *New Achievements in Technology, Education and Development*, Editor S. Soomro, In-Tech, 2010, pp. 33-50 (ISBN 978-953-307-066-7).
  - “Hybrid Organic-Inorganic Nanostructured Magnets”,  
**M.A. Gîrțu**  
in *Magnetic Nanostructures*, H.S. Nalwa, ed., American Scientific Publishers, Los Angeles, 2002, pp. 359-405 (ISBN 1-58883-000-4).
- 

### B. Volumes edited:

- *Proceedings of the Nano-Sol-Net International Symposium: Trends in Organic Electronics and Hybrid Photovoltaics*, Eforie Nord, Romania, June 12-14, 2008, edited by M.A. Gîrțu and M. Fahlman, Ovidius University Press, Constanța 2008, (ISBN 978-973-614-414-1).
  - *Proceedings of the 9<sup>th</sup> International Balkan Workshop on Applied Physics, July 7-9, 2008*, V. Ciupină, H. Alexandru, **M.A. Gîrțu**, guest editors,  
in *Journal of Optoelectronics and Advanced Materials* vol. 10, no. 11, 2008 (ISSN 1454-4164).
  - *Proceedings of the 8<sup>th</sup> International Balkan Workshop on Applied Physics, July 5-7, 2007*, V. Ciupină, H. Alexandru, **M.A. Gîrțu**, guest editors,  
in *Journal of Optoelectronics and Advanced Materials* vol. 10, no. 1, 2008 (ISSN 1454-4164).
  - *Proceedings of the 7<sup>th</sup> International Balkan Workshop on Applied Physics, July 5-7, 2006*, V. Ciupină, **M.A. Gîrțu**, guest editors,  
in *Journal of Optoelectronics and Advanced Materials* vol. 9, no. 4, 2007 (ISSN 1454-4164).
  - *Proceedings of the 6<sup>th</sup> International Balkan Workshop on Applied Physics, July 5-7, 2005*, V. Ciupină, H. Alexandru, **M.A. Gîrțu**, guest editors,  
in *Journal of Optoelectronics and Advanced Materials* vol. 8, no. 1, 2006 (ISSN 1454-4164).
- 

### C. Articles published in ISI journals:

1. „DFT study of binding and electron transfer from a metal-free dye with carboxyl, hydroxyl and sulfonic anchors to a titanium dioxide nanocluster”  
C.I. Oprea, P. Panait, J. Lungu, D. Stamate, A. Dumbravă, F. Cimpoesu, **M.A. Gîrțu**  
**International Journal of Photoenergy** 893850 (2013).
2. „DFT Study of Coumarin-based Dyes Adsorbed on TiO<sub>2</sub> Nanoclusters – Applications to Dye-Sensitized Solar Cells”  
C.I. Oprea, P. Panait, F. Cimpoesu, M. Ferbinteanu, **M.A. Gîrțu**  
**Materials** 6, 2372 (2013).
3. „Comparative computational IR, Raman and phosphorescence study of Ru- and Rh-based complexes”  
C.I. Oprea, P. Panait, B.F. Minaev, H. Ågren, F. Cimpoesu, M. Ferbinteanu, **M.A. Gîrțu**  
**Molecular Physics** 111, 1526 (2013).

4. „New insights in the bonding regime and ligand field in Wernerian complexes. A density functional study”  
F. Cimpoesu, A. Zaharia, D. Stamate, P. Panait, C.I. Oprea, **M.A. Gîrțu**, M. Ferbinteanu  
**Polyhedron** **52**, 183 (2013).
5. „Spectral calibration of a LED-based solar simulator - a theoretical approach”  
A. Georgescu, **M.A. Gîrțu**, V. Ciupina  
**Journal of Optoelectronics and Advanced Materials** **15**, 31 (2013).
6. „Broken Symmetry DFT Calculations of Exchange Coupling Constants for Manganese-Porphyrin Quasi-One-Dimensional Molecular Magnets”  
C.I. Oprea, P. Panait, F. Cimpoesu, I. Humelnicu, M. Ferbinteanu, **M.A. Gîrțu**  
**Theoretical Chemistry Accounts** **131**, 1249 (2012).
7. „A combined experimental and theoretical study of natural betalain pigments used in dye-sensitized solar cells”  
C.I. Oprea, A. Dumbravă, I. Enache, A. Georgescu, **M.A. Gîrțu**  
**J. Photochem. Photobio. A** **240**, 5 (2012).
8. „Structure and Magnetism in Fe-Gd Based Dinuclear and Chain Systems. The Interplay of Weak Exchange Coupling and Zero Field Splitting Effects”  
M. Ferbinteanu, F. Cimpoesu, **M.A. Gîrțu**, C. Enachescu, and S. Tanase  
**Inorganic Chemistry** **51**, 40 (2012).
9. „Towards a more efficient utilization of betalains as pigments for dye-sensitized solar cells”  
A. Dumbravă, I. Enache, C.I. Oprea, A. Georgescu, **M.A. Gîrțu**  
**Digest J. Nanomater. Biostruct** **7**, 339 (2012).
10. „DFT Study of Electronic Structure and Optical Properties of Some Ru- and Rh-Based Complexes for Dye-Sensitized Solar Cells”  
C.I. Oprea, B. Frecuș, B.F. Minaev, and **M.A. Gîrțu**  
**Molecular Physics** **109**, 2511 (2011).
11. “DFT Study of Structure-Properties Correlations in [MnTPP][TCNE] Quasi One-Dimensional Molecular Magnets”  
C.I. Oprea, F. Cimpoesu, P. Panait, B. Frecuș, M. Ferbinteanu and **M.A. Gîrțu**  
**Theor. Chem. Acc.** **129**, 847 (2011).
12. “Role of energy level alignment in solar cells sensitized with a metal-free organic dye: A combined experimental and theoretical approach”  
C.I. Oprea, A. Dumbrava, I. Enache, J. Lungu, A. Georgescu, F. Moscalu, C. Oprea, and **M.A. Gîrțu**  
**Phys. Status Solidi A** **208**, 2467 (2011).
13. „IR, Raman and UV-vis spectra of the Ru(II) cyano complexes studied by DFT”  
B.F. Minaev, V.A. Minaeva, G. Baryshnikov, **M.A. Gîrțu**, and H. Ågren  
**Molecular Simulation** **37**, 670 (2011).
14. „DFT Study of the Optical and Vibration Spectra of a Series of Platinum-Olefin Complexes”  
C.I. Oprea, F. Moscalu, A. Dumbrava, S. Ioannou, A. Nicolaidis and **M.A. Gîrțu**  
**Romanian Journ. Phys.** **55**, 125 (2011).
15. „Noncovalent effects in the coordination and assembling of the[Fe(bpc<sub>a</sub>)<sub>2</sub>][Er(NO<sub>3</sub>)<sub>3</sub>(H<sub>2</sub>O)<sub>4</sub>]NO<sub>3</sub> system”  
M. Ferbinteanu<sub>1</sub>, A. Zaharia, **M.A. Gîrțu**, and F. Cimpoesu  
**Cent. Eur. J. Chem.** **8**, 519 (2010).
16. Heterocyclic azodyes as pigments for dye sensitized solar cells – A combined experimental and theoretical study”  
J. Lungu, C.I. Oprea, A. Dumbravă, I. Enache, A. Georgescu, C. Rădulescu, I. Ioniță G.V. Cimpoaca, **M. A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **12**, 1969 (2010).
17. „The DFT rationalization of exchange and anisotropy in one-dimensional *d-p* magnets. The [Mn<sup>III</sup>(porphyrin)][TCNE] case study.”  
F. Cimpoesu, M. Ferbinteanu, B. Frecuș, and **M.A. Gîrțu**

**Polyhedron** **28**, 2039 (2009)

18. „Theoretical Study of Vibration Spectra of Sensitizing Dyes for Photoelectrical Converters Based on Ruthenium(II) and Iridium(III) Complexes”  
B.F. Minaev, V.A. Minaeva, G.V. Baryshnikov, **M.A. Gîrțu**, and H. Ågren  
**Russian Journal of Applied Chemistry** **82**, 1211 (2009)
19. „DFT Study of Electronic Properties, Structure and Spectra of Aryl Diazonium Cations”  
B.F. Minaev, S.V. Bondarchuk, **M.A. Gîrțu**  
**J. Mol. Struct. (Theochem)** **904**, **14** (2009)
20. „Optical and Infrared Properties of a Series of Pyramidalized Olefin Pt-Complexes - DFT Study”  
C.I. Oprea, F. Moscalu, A. Dumbrava, S. Ioannou, A. Nicolaidis and **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **11**, 1773 (2009).
21. „Synthesis and characterization of nanocrystalline  $\gamma$ -Y<sub>2</sub>SiO<sub>7</sub> powder”  
I. Carazeanu Popovici, V. Ciupină, G. Prodan, **M.A. Gîrțu**  
**Metalurgia International** **14**, 25 (2009)
22. „Class A small area solar simulator for dye-sensitized solar cell testing”  
A. Georgescu, G. Damache, **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **10**, 2996 (2008).
23. „Dye-sensitized solar cells based on nanocrystalline TiO<sub>2</sub> and natural pigments”  
A. Dumbravă, A. Georgescu, G. Damache, C. Badea, I. Enache, C. Oprea, **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **10**, 2996 (2008).
24. „Structural characterisation of lanthanum aluminate synthesized by the Pechini method”  
I. Carazeanu Popovici, V. Ciupina, G. Prodan, **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **10**, 2942 (2008).
25. „The analytical control of some photocromic materials”  
I. Ioniță, A.-M. Albu, C. Rădulescu, E. I. Moater, G.V. Cimpoca, **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **10**, 2864 (2008).
26. „HRTEM Study of nano-TiO<sub>2</sub> powder”  
I. Carazeanu Popovici, **M.A. Gîrțu**, E. Chirilă V. Ciupină, G. Prodan  
**Revista de Chimie** **59**, 413 (2008)
27. “Theoretical study of neutral and reduced hexacyanobutadiene”  
C.I. Oprea, A. Damian, and **M.A. Gîrțu**  
**J. Mol. Struct. (Theochem)** **804**, 111 (2007)
28. „Nanostructured Hybrid Organic-Inorganic Magnets – New Materials and New Potential Applications”  
**M.A. Gîrțu**  
**Revue Roumaine de Sciences Techniques - Série Électrotechnique et Énergétique** **52**, 131-142, (2007).
29. “Study on Poly(3,4-ethylene dioxothiophene)-Poly(styrenesulfonate) as a plastic counter electrode in dye sensitized solar cells”  
A. Kanciurzevska, E. Dobruchowska, A. Baranzahi, E. Carlegrim, M. Fahlman, and **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **9**, 1052 (2007).
30. “Molecular dynamics simulation of defect formation in irradiated Cu”  
D. Șopu, D.M. Popovici, and **M.A. Gîrțu**  
**J. Optoelectr. Adv. Mater.** **9**, 799 (2007).
31. ”Spin density calculations for two electron-acceptor constituents of molecular magnets: tetracyanoethylene and hexacyanobutadiene”  
C.I. Oprea, A. Damian, **M.A. Gîrțu**  
**J. Optoelectr. and Adv. Mat.** **8**, 191 (2006).
32. ”Cole-Cole analysis of the ac magnetic susceptibility of some layered hybrid organic-inorganic magnets”  
**M.A. Gîrțu**  
**J. Optoelectr. and Adv. Mat.** **5**, 991 (2003).

33. "Cole-Cole analysis of the dynamic susceptibility of a quasi-one-dimensional Mn(porphyrin)-based hybrid organic-inorganic magnet"  
**M.A. Gîrțu**  
**J. Optoelectr. and Adv. Mat.** **4**, 85 (2002).
34. "Magnetic behaviour of a 3-dimensional hybrid organic/inorganic magnet"  
**M.A. Gîrțu**,  
**J. Optoelectr. and Adv. Mat.** **3**, 113 (2001)
35. "Glassiness and canted antiferromagnetism in three geometrically frustrated triangular quantum Heisenberg antiferromagnets with weak Dzyaloshinskii-Moriya interaction",  
**M.A. Gîrțu**, C.M. Wynn, W. Fujita, K. Awaga and A.J. Epstein,  
**Phys. Rev. B** **61**, 4117 (2000).
36. "Magnetic properties and critical behavior of  $\text{Fe}(\text{TCNE})_2 \times (\text{CH}_2\text{Cl}_2)$ , a high  $T_c$  molecule-based magnet",  
**M.A. Gîrțu**, C.M. Wynn, J. Zhang, J.S. Miller and A.J. Epstein,  
**Phys. Rev. B** **61**, 429 (2000).
37. "Coexistence of glassiness and canted antiferromagnetism in triangular quantum Heisenberg antiferromagnets with weak Dzyaloshinskii-Moriya interaction",  
**M.A. Gîrțu**, C.M. Wynn, W. Fujita, K. Awaga and A.J. Epstein,  
**Phys. Rev. B** **57**, R11058 (1998).
38. "Reentrance in the  $\text{Mn}(\text{tetracyanoethylene})_x \text{y}(\text{CH}_2\text{Cl}_2)$  high- $T_c$  molecule-based ferrimagnet",  
C.M. Wynn, **M.A. Gîrțu**, J. Zhang, J.S. Miller and A.J. Epstein,  
**Phys. Rev. B** **58**, 8508 (1998).
39. "Lattice and spin-dimensionality crossovers in a linear-chain molecule-based ferrimagnet with weak spin anisotropy",  
C.M. Wynn, **M.A. Gîrțu**, J.S. Miller and A.J. Epstein,  
**Phys. Rev. B** **56**, 315 (1997).
40. "Magnetic phase diagram of a molecule-based ferrimagnet: Weak ferromagnetism and multiple dimensionality crossovers",  
C.M. Wynn, **M.A. Gîrțu**, J.S. Miller and A.J. Epstein,  
**Phys. Rev. B** **56**, 14050 (1997).
41. "Canted antiferromagnetic and spin glass-like behavior in a family of two-dimensional organic/inorganic nanocomposites",  
**M.A. Gîrțu**, C.M. Wynn, W. Fujita, K. Awaga, and A.J. Epstein,  
**J. Appl. Phys.** **83**, 7378 (1998).
42. "Effect of disorder on the linear and nonlinear magnetic susceptibilities of two manganese-porphyrin-based magnets",  
**M.A. Gîrțu**, C.M. Wynn, K-I. Sugiura, J.S. Miller and A.J. Epstein,  
**J. Appl. Phys.** **81**, 4410 (1997).
43. "The influence of disorder on the magnetic phenomena in metalloporphyrin-based magnets",  
**M.A. Gîrțu**, C.M. Wynn, K-I. Sugiura, J.S. Miller and A.J. Epstein,  
**Synth. Met.** **85**, 1703 (1997).
44. "Long-range magnetic order in the quasi-1D metalloporphyrin family of molecule-based magnets",  
C.M. Wynn, **M.A. Gîrțu**, K-I. Sugiura, E.J. Brandon, J.L. Manson, J.S. Miller and A.J. Epstein,  
**Synth. Met.** **85**, 1695 (1997).
45. "Magnetic order and disorder in a family of layered organic/inorganic nanocomposites",  
**M.A. Gîrțu**, C.M. Wynn, W. Fujita, K. Awaga and A.J. Epstein,  
**Molec. Cryst. Liq. Cryst.** **334**, 703 (1999).
46. "New high  $T_c$  molecule-based magnet - Magnetic behavior of  $\text{M}(\text{TCNE})_2 \times (\text{CH}_2\text{Cl}_2)$  ( $\text{M} = \text{Mn}, \text{Fe}$ )",  
**M.A. Gîrțu**, C.M. Wynn, C.R. Kmety, J. Zhang, J.S. Miller and A.J. Epstein,  
**Molec. Cryst. Liq. Cryst.** **334**, 539 (1999).
47. "Magnetic ground state and its control in porphyrin-based magnets",  
A.J. Epstein, C.M. Wynn, **M.A. Gîrțu**, W.B. Brinckerhoff, K-I. Sugiura and J.S. Miller,

- Molec. Cryst. Liq. Cryst.** **305**, 321 (1997).
48. “Reversed (negative) magnetization for electrochemically deposited high-T<sub>c</sub> thin films of chromium hexacyanide magnets”,  
W.E Buschmann, S.C. Paulson, C.M. Wynn, **M.A. Gîrțu**, A.J. Epstein, H.S. White and J.S. Miller,  
**Chem. Mater.** **10**, 1386 (1998).
49. “Magnetic dipole-dipole interactions and single-ion anisotropy: Revisiting a classical approach to magnets”,  
C.M. Wynn, **M.A. Gîrțu**, W.B. Brinckerhoff, K-I. Sugiura, J.S. Miller and A.J. Epstein,  
**Chem. Mater.** **9**, 2156 (1997).
50. “Magnetic field induced reversed (negative) magnetization for electrochemically-deposited 260 K T<sub>c</sub> oxidized films of chromium cyanide magnets”,  
W.E Buschmann, S.C. Paulson, C.M. Wynn, **M.A. Gîrțu**, A.J. Epstein, H.S. White and J.S. Miller,  
**Adv. Mat.** **9**, 645 (1997).
- 

**E. Articles published in ISI proceedings:**

1. „DFT Calculations of IR and Raman Spectra of Ru(bpy)<sub>2</sub>(CN)<sub>2</sub> Complex”  
B.F. Minaev B, V. Minaeva, G. Baryshnikov, H. Agren, **M.A. Gîrțu**  
Clean Technology 2009 Conference and Expo, MAY 03-07, 2009 Houston, TX, Technical proceedings: Bioenergy, Renewables, Storage, Grid, Waste and Sustainability 51 (2009).
2. „DFT Study of Optical Properties of Pt-based Complexes”,  
Corneliu I. Oprea, Anca Dumbravă, Florin Moscalu, Athanassios Nicolaidis, and Mihai A. Gîrțu,  
Conference Proceedings - 7th International Conference of the Balkan Physical Union, edited by A. Angelopoulos and T. Fildisis, **AIP Conference Proceedings 1203**, 1198 (2009).
3. „Theoretical Calculations of Structure and Exchange Coupling of a Room-Temperature Molecular Magnet”  
Fănică Cimpoesu, Bogdan Frecuș, Corneliu I. Oprea and **Mihai A. Gîrțu**  
Conference Proceedings - 7th International Conference of the Balkan Physical Union, edited by A. Angelopoulos and T. Fildisis, **AIP Conference Proceedings 1203**, 1192 (2009).
4. „Enrolling in Science and Engineering Academic Programs – Motivating and Detering Factors”  
Valentina Pomazan, Doina Mihalașcu, Lucian C. Petcu, and **Mihai A. Gîrțu**  
Conference Proceedings - 7th International Conference of the Balkan Physical Union, edited by A. Angelopoulos and T. Fildisis, **AIP Conference Proceedings 1203**, 1372 (2009).
5. ”Dye sensitized solar cells with a plastic counter electrode of poly(3,4-ethylene dioxythiophene)-poly(styrenesulfonate),” A. Kancierzewska, E. Dobruchowska, A. Baranzahi, E. Carlegrim, A. Fahlman, M. Fahlman, **M.A. Gîrțu**, in Organic Photovoltaics VIII, edited by Zakya H. Kafafi, Paul A. Lane, Proc. of SPIE Vol. 6656, 665611, (2007).
6. „Dye-Sensitized Solar Cells with nanocrystalline TiO<sub>2</sub>”  
Ana Fahlman, A. Baranzahi, M. Fahlman, A. Damian, **M.A. Gîrțu**  
Conference Proceedings 899 - Sixth International Conference of the Balkan Physical Union, edited by S. A. Cetin and I. Hikmet, American Institute of Physics, 2007, p. 757 (ISBN 978-7354-0404-5, ISSN 0094-243X)
7. “DFT Calculations of a Metal-TCNE Complex”  
Corneliu I. Oprea, Alina Damian, and **Mihai A. Gîrțu**,  
Conference Proceedings 899 - Sixth International Conference of the Balkan Physical Union, edited by S. A. Cetin and I. Hikmet, American Institute of Physics, 2007, p. 716 (ISBN 978-7354-0404-5, ISSN 0094-243X)
8. “Molecular Dynamics Simulations of the Time Evolution of Irradiation Induced Defects”  
Daniel Șopu and **Mihai A. Gîrțu**  
Conference Proceedings 899 - Sixth International Conference of the Balkan Physical Union, edited by S. A. Cetin and I. Hikmet, American Institute of Physics, 2007, p. 717 (ISBN 978-7354-0404-5, ISSN 0094-243X)
-