

Professor Boris Tsukerblat,
Department of Chemistry, Ben-Gurion University of the Negev

Research publications

(370- books, review articles, invited chapters in the books, papers)

Books:

1. B. S. Tsukerblat, *Group Theory in Chemistry and Spectroscopy*, Dover Pub., Mineola, New York , pp.1-448 (2006).
2. B. S. Tsukerblat, *Group Theory in Chemistry and Spectroscopy. A Simple Guide to Advanced Usage*, London, Academic Press, pp. 1-438, (1994).
3. Yu. E. Perlin, B. S. Tsukerblat, *Effects of Vibronic Interactions in the Optical Spectra of Paramagnetic Impurity Ions*, Kishinev, Pub. Acad. Sci., pp. 1-368 (1974).
4. B. S. Tsukerblat, M. I. Belinskii, *Magnetochemistry and Radiospectroscopy of Exchange Clusters*, Kishinev, Pub. Academy. Sci. pp. 1-280 (1983).

Main review articles and invited chapters in the books:

5. Yu. E. Perlin, B. S. Tsukerblat. "Optical Bands and Polarization Dichroism of Jahn-Teller Centers", in: "Dynamical Jahn-Teller Effect in Localized Systems", Elsevier Publ. B. B. (1984) pp. 251-346, Amsterdam.
6. B. S. Tsukerblat, M. I. Belinskii, V. E. Fainzilberg, "Magnetochemistry and Spectroscopy of Transition Metal Exchange Clusters", in Soviet Sci. Rev. B.,ed. M. E. Vol'pin, Harwood Acad. Publishers, NY, v.9 (1987), pp. 337-482.
7. B. S. Tsukerblat, "Electronic and Vibrational Spectroscopy", in "The Jahn-Teller Effect. A Bibliographic Review", ed. I. B. Bersuker, Plenum Press (1984).
8. B. S. Tsukerblat, S.I. Klokishner, M. I. Belinskii, Mixed-valence exchange clusters, *Materials Science*, 17 (1992) 69-103 (*Guest Editor:* B. Tsukerblat).
9. E. Coronado, R. Georges, B. S. Tsukerblat, Exchange Interactions: Mechanisms, in: *Localized and Itinerant Molecular Magnetism: From Molecular Assemblies to the Devices*, NATO ASI Series, eds: E. Coronado, P. Delhaes, D. Gatteschi, J. Miller, Kluwer Acad. Publishers (1996), pp. 65-84.
10. J. M. Clemente, R. Georges, A. V. Palii, B. S. Tsukerblat, Exchange Interactions: Spin Hamiltonians, *ibid.*, p. p. 85-104.
11. J. J. Borrás-Almenar, E. Coronado, R. Georges, B. S. Tsukerblat. Localization vs. Delocalization in Molecules and Clusters: Electronic and Vibronic Interactions, *ibid.*, p p. 105-139.
12. J.J.Borrás-Almenar, J.M.Clemente-Juan, E.Coronado, A.V.Palii, B.S.Tsukerblat, Magnetic Properties of Mixed-Valence Systems: Theoretical Approaches and Applications, in: *Magnetoscience-From Molecules to Materials*, eds.: J. Miller, M. Drillon, Willey-VCH, 2001, 155-210.
13. M.N. Nazarov, B.S. Tsukerblat, "Luminescent Performance of Europium and Terbium Activated Phosphors", in: *Focus on Material Science Research*, pp. 1-74, Nova Science Publishers, Inc, NY, 2006.
14. P. Kögerler, B. Tsukerblat, A. Müller, Structure-Related Frustrated Magnetism of Nanosized Polyoxometalates: Aesthetic Beauty and Properties in Harmony, *Dalton Transactions*, 39 (2010) 21–36 (*invited perspective review article, cover image*).
15. B. Tsukerblat, S. Klokishner, A. Palii, Jahn-Teller effect in molecular magnetism: an overview, *Springer Series of Chemical Physics "The Jahn-Teller effect. Fundamentals and Implications for Physics and Chemistry"*, 2009, Vol. 97, H. Köppel, D.R. Yarkony, H. Barentzen, (Eds.), pp. 555-620.

16. A. Palii, B. Tsukerblat, J. M. Clemente-Juan, E. Coronado, Magnetic exchange between metal ions with unquenched orbital angular momenta: basic concepts and relevance to molecular magnetism, *International Reviews in Physical Chemistry*, 29 (2010) 135–230.
17. B. Tsukerblat, A. Tarantul, The nanoscopic V₁₅ cluster: an unique magnetic polyoxometalate, in: “*Molecular Cluster Magnets*”, Ed. R. Winpenny, Chapter 3, pp. 106-180, World Scientific Publishers, Singapore, 2011.
18. A. Palii, B. Tsukerblat, S. Klokishner, K. Dunbar, J. M. Clemente-Juan, E. Coronado, Beyond the spin model: Exchange coupling in molecular magnets with unquenched orbital angular momenta, *Chemical Society Reviews*, 40 (2011) 3130–3156 (*invited critical review, cover image*).

Selected papers (since 2002)

1. A.A. Haroun, L.L. Kulyuk, V. Yu. Mirovitskii, A.N. Nateprov, A.V. Palii, V.E. Tezlevan, **B.S. Tsukerblat**, Multiphonon Optical Bands of Cr³⁺ ion in sulphide spinels: A pseudo Jahn-Teller Model, *SPIE*, vol. 4766 (2002) 248.
2. A.V. Palii, **B.S. Tsukerblat**, M. Verdaguer, Orbitally dependent kinetic exchange in a heterobimetallic pair, ferromagnetic spin alignment and magnetic anisotropy in cyano-bridged Cr(III)Fe(II) dimer, *J. Chem. Physics*, 117 (2002) 7896-7905.
3. E. Coronado, S.I. Klokishner, O. Reu, **B.S. Tsukerblat**, Pseudo Jahn-Teller origin of the metastable states in sodium nitroprusside, *Advances in Quantum Chemistry*, 44 (2003) 429-444.
4. K. Dunbar, E. Schelter, **B. Tsukerblat**, A. Palii, S. Ostrovsky, V. Mirovitskii, S. Klokishner, Effects of the pseudo Jahn-Teller Vibronic coupling and low-symmetry crystal fields on the magnetic properties of complex d⁵ ions, *Advances in Quantum Chemistry*, 44 (2003) 414-428.
5. K. R. Dunbar, Eric J. Schelter, A.V. Palii, S. M. Ostrovsky, V. Yu. Mirovitskii, J.M. Hadson, M. A. Omary, S.I. Klokishner, **B. S. Tsukerblat**, Unusual magnetic behavior of six-coordinate, mixed-ligand Re(II) complexes: origin of a strong temperature independent paramagnetism, *J. Phys. Chem. A* 107 (2003) 11102-11111.
6. A.V. Palii, **B.S. Tsukerblat**, E. Coronado, J.M. Clemente-Juan, J.J. Borrás-Almenar, Microscopic approach to the pseudo-spin-1/2 Hamiltonian for Kramers doublets in exchange coupled Co(II) pairs, *Inorganic Chemistry*, 42 (2003) 2455-2458.
7. A.V. Palii, **B.S. Tsukerblat**, E. Coronado, J.M. Clemente-Juan, J.J. Borrás-Almenar, Orbitally-dependent magnetic coupling between cobalt(II) ions: the problem of the magnetic anisotropy, *J. Chem. Physics*, 118 (2003) 5566-5581.
8. E. Coronado, S.I. Klokishner, O. Reu, **B.S. Tsukerblat**, A pseudo Jahn-Teller model of the photochromic effect in sodium nitroprusside, *Polyhedron*, 22 (2003) 2527-2535.
9. A.V. Palii, **B.S. Tsukerblat**, E. Coronado, J.M. Clemente-Juan, J. J. Borrás-Almenar, Orbitally –dependent kinetic exchange in cobalt(II) pairs: microscopic theory of the magnetic anisotropy, *Polyhedron*, 22 (2003) 2537-2544.
10. J. J. Borrás-Almenar, J.M. Clemente-Juan, E. Coronado, A.V. Palii, **B.S. Tsukerblat**, Problem of the magnetic anisotropy in orbitally degenerate exchange and mixed-valence clusters, *Polyhedron*, 22 (2003) 2551-2526.
11. K. Dunbar, E. Schelter, **B. Tsukerblat**, S. Ostrovsky, V. Mirovitskii, A. Palii, Magnetic properties of complex d¹ and d⁵ ions: crystal field model, Jahn-Teller effect, *Polyhedron*, 22 (2003) 2545-2556.
12. M. V. Nazarov, M. V. Zamoryanskaya, E.-J. Popovici, L. Ungur, **B.S. Tsukerblat**, Luminescence of calcium tungstate phosphors doped with europium and terbium, *Moldavian Journal of Physical Sciences*, 2 (2003) 68-79.
13. M.V. Nazarov, **B.S. Tsukerblat**, E.-J. Popovich, D.Y. Jeon, Optical lines in europium-terbium double activated calcium tungstate phosphor, *Physics Letters*, A330 (2004)

291-298.

14. S.I.Klokishner, **B.S. Tsukerblat**, O.Reu, A.V.Palii, Jahn-Teller vibronic coupling in CdSe doped with Cr^{2+} ions, *Optical Materials*, 27 (2005) 1445–1450.
15. K.R. Dunbar, E.J. Schelter, S.I. Klokishner, S.M. Ostrovsky, V.Yu. Mirovitskii, A.V. Palii, J.M. Hudson, M.A. Omary, **B.S. Tsukerblat**, Origin of anomalously strong temperature independent paramagnetism of two Re(II) compounds: $[\text{Re}(\text{triphos})(\text{CH}_3\text{CN})_3][\text{BF}_4]_2$ and $[\text{Et}_4\text{N}][\text{Re}(\text{triphos})(\text{CN})_3]$, *Moldavian Journal of the Physical Sciences*, 3 (2004) 315-319.
16. S.I. Klokishner, **B.S. Tsukerblat**, O.S. Reu, A.V. Palii, S.M. Ostrovsky, Jahn-Teller coupling in II-VI semiconductors doped with Cr^{2+} ions, *Moldavian Journal of the Physical Sciences*, 3 (2004) 320-324.
17. S.V. Kunitsky, A. V. Palii, **B.S. Tsukerblat**, J. M. Clemente-Juan, E. Coronado, MVPROG: a program to calculate energy levels and magnetic properties of high nuclearity mixed valence clusters, *Moldavian Journal of the Physical Sciences*, 3 (2004) 325-328.
18. S.V. Kunitsky, S.M. Ostrovsky, A.V. Palii, S.I. Klokishner, **B.S. Tsukerblat**, J.R. Galán-Mascarós, C.P. Berlinguette, K.R. Dunbar, Control of energy barrier in cyanide based single molecule magnets containing metal ions with unquenched orbital angular momenta: prospects for design of single molecule magnets with high blocking temperatures, *Moldavian Journal of the Physical Sciences*, 3 (2004) 329-333
19. A. V. Palii, S. M. Ostrovsky, S. I. Klokishner, **B.S. Tsukerblat**, J. R. Galán-Mascarós, C. P. Berlinguette, K. R. Dunbar, The role of the orbitally degenerate Mn(III) ions in the magnetic bistability of the Mn_5 -cyanide cluster, *Moldavian Journal of the Physical Sciences*, 4 (2005), 25-29.
20. A.V. Palii, S.M. Ostrovsky, S. I. Klokishner, **B.S. Tsukerblat**, C. P. Berlinguette, K.R. Dunbar, J.R. Galán-Mascarós, Role of the orbitally degenerate Mn(III) ions in the single molecule magnet behavior of the cyanide cluster $\{[\text{Mn}^{\text{II}}(\text{tmphen})_2]_3[\text{Mn}^{\text{III}}(\text{CN})_6]_2\}$ (tmphen = 4,5,7,8-tetramethyl-1,10-phenanthroline), *J. Am. Chem. Soc.*, 126 (2004) 16860- 16867.
21. MV. Nazarov, J.H. Kang, D.Y. Jeon, E.-J. Popovich, L.Muresan, **B.S. Tsukerblat**, Lattice parameter and luminescence properties of europium activated yttrium oxide, *Solid State Communications*, 133 (2004) 180-186.
22. M.A.Ivanov, V.Ya. Mitrofanov, L.D. Falkovskaya, A.Ya. Fishman, **B.S. Tsukerblat**, Electric-dipole amplification of the NMR intensity in mixed-valence complexes, *J. Exp.Theor. Physics -Letters*, 81 (2005) 18-21
23. J. F. Berry, F. Albert Cotton, C. Y. Liu, T.Lu, C. A. Murillo, **B.S. Tsukerblat**, D. Villagrán, X.Wang, Modeling spin Interactions in a cyclic trimer and a cuboidal Co_4O_4 Core with Co(II) in tetrahedral and octahedral environments, *J. Am. Chem. Soc.*, 127 (2005) 4895-4902
24. A.V. Palii, **B.S. Tsukerblat**, J.M. Clemente-Juan, E. Coronado, Isotropic magnetic exchange between anisotropic Yb (III) ions. Study of $\text{Cs}_3\text{Yb}_2\text{Cl}_9$ and $\text{Cs}_3\text{Yb}_2\text{Br}_9$ crystals, *Inorganic Chemistry*, 44 (2005) 3984-3992.
25. MV. Nazarov, **B.S. Tsukerblat**, E.-J. Popovich, D.Y. Jeon, Polarization selection rules for the allowed optical transitions in europium-terbium double activated calcium tungstate phosphors, *Solid State Communications*, 133 (2005) 203-208.
26. **B.S. Tsukerblat**, A.V. Palii, S.M. Ostrovsky, S. V. Kunitsky, S. I. Klokishner, K. R. Dunbar, Control of the Barrier in Cyanide Based Single Molecule Magnets $\text{Mn}(\text{III})_2\text{Mn}(\text{II})_3$: Theoretical Analysis, *Journal of Chemical Theory and Computation*, 1 (2005) 668-673.
27. S.Klokishner, **B. Tsukerblat**, O.Reu, A.V.Palii, S.Ostrovsky, Jahn-Teller vibronic coupling in II-VI compounds doped with Cr(III) ions, *Chemical Physics*, 316 (2005) 83-92.
28. L.D. Falkovskaya, A.Ya. Fishman, M.A.Ivanov, V.Ya. Mitrofanov, **B.S. Tsukerblat**,

- Peculiarities of NMR spectral distribution of Jahn-Teller centers in magnetoordered crystals, *Metallophysics and New Technologies*, 27 (2005) 95-117.
29. A. Müller, S. Talismanov, P. Kögerler, H. Bögge, M. Schmidtmann, **B. Tsukerblat**, Expanding the hierarchy of metal-oxide building blocks from fragments via clusters to networks: $A_{\infty}^2[(\{Mo_{17}(NO)_2\}_3\{Mo^V_2\}_3\{Fe^{III}\}_6)(Fe^{II}_{1.5})]$ - type layer compound, *Journal of Cluster Science*, 16 (2005) 391-396.
 30. A. V. Palii, S. M. Ostrovsky, S.I. Klokishner, **B.S. Tsukerblat**, K.R. Dunbar, Highly anisotropic orbitally-dependent superexchange in cyano-bridged clusters containing Mn(III) and Mn(II) ions, *ChemPhysChem*, 7 (2006) 871 – 879.
 31. **B. Tsukerblat**, A. Tarantul, A. Müller, Crossover of the magnetic levels and adiabatic magnetization of the mesoscopic cluster V_{15} , *Physics Letters A* 353 (2006) 48–59.
 32. **B. Tsukerblat**, A. Tarantul, A. Müller, Low temperature EPR spectra of the mesoscopic cluster V_{15} : the role of antisymmetric exchange, *J. Chem. Phys.*, 125 (2006) 0547141-0547149.
 33. A. Tarantul, **B. Tsukerblat**, A. Müller, High-field magnetization of V_{15} at ultra-low temperatures: estimation of the antisymmetric exchange, *Chem. Phys. Let.*, 428 (2006) 361–366.
 34. A. Tarantul, **B. Tsukerblat**, A. Müller, Static magnetization of V_{15} cluster at ultra-low temperatures: precise estimation of antisymmetric exchange, *Inorganic Chemistry*, 46 (2007) 161-169.
 35. **B. Tsukerblat**, A. Tarantul, A. Müller, Antisymmetric exchange and pseudo Jahn-Teller instability in spin-frustrated metal clusters, *J. Mol. Structure*, 2007, 838, 124-132.
 36. S. Klokishner, O. Reu, S. Ostrovsky, A.Palii, L.Kulyuk, **B. Tsukerblat**, E.Towe, Jahn-Teller coupling in spinel-type crystals doped with transition metal ions, *J. Mol. Structure*, 838 (2007) 133-143.
 37. **B. Tsukerblat**, The Jahn-Teller Effect (by Isaac B. Bersuker), Book Review, *Angewante Chemie, Int. Ed.* 45 (2006) 8089 – 8090.
 38. **B. Tsukerblat**, A. Tarantul, A. Müller, Nanoscopic molecular cluster V_{15} : high-field EPR and magnetization at ultra-low temperatures, *Chemistry Journal of Moldova*, 2(1) (2007)17-35.
 39. A.Müller, M. T. Pope, Ana M. Todea, H. Bögge, Joris van Slageren, M. Dressel, P. Gouzerh, R. Thouvenot, **B. Tsukerblat**, A. Bell, Metal-oxide based nucleation process under boundary/confined conditions: two mixed-valence V_6 type aggregates/hubcaps closing the W_{48} wheel type cluster cavities, *Angewante Chemie*, 119 (2007) 4561 –4564.
 40. A.V. Palii, S.M. Ostrovsky, S.I. Klokishner, **B.S. Tsukerblat**, E.J. Schelter, A.V. Prosvirin, K.R. Dunbar, Magnetic anisotropy in the octanuclear $Re^{II}_4Mn^{II}_4$ cluster exhibiting Single-Molecule Magnet behavior: Quantum-spin and classical-spin approaches, *Inorganica Chimica Acta*, 360 (2007) 3915–3924.
 41. N. Zamstein, A. Tarantul, **B. Tsukerblat**, Magnetic excitations in Cu_6 and Mn_6 hexagons embedded in D_{3d} -symmetric polyoxotungstates, *Inorganic Chemistry*, 46(21) (2007) 8851-8858
 42. A. Tarantul, **B. Tsukerblat**, A. Müller, Static and dynamic deformation versus Antisymmetric Exchange in the frustrated trinuclear cluster, *Solid State Sciences*, 10 (2008) 1814-1819.
 43. A. Tarantul, **B. Tsukerblat**, A. Müller, Field induced crossover in antiferromagnetic spin frustrated clusters: influence of static and dynamic deformations, *J. Mol. Structure*, 890 (2008) 170–177.
 44. J. Ho Ryu, Y.-G. Park, H. S. Won, S. H. Kim, H. Suzuki, J. M. Lee, C. Yoon, M. Nazarov, D.Y. Noh, **B. Tsukerblat**, Luminescent properties of Ca-a-SiAlON:Eu²⁺ phosphors synthesized by gas-pressured sintering, *Journal of the Electrochemical*

- Society*, 155 (2008) J99-J104.
45. M. Nazarov, **B. Tsukerblat**, Do Young Noh, Electron-vibrational interaction in 4f-5d optical transitions in Ba, Ca, Sr thiogallates doped with Eu^{2+} ions, *Journal of Luminescence*, 128 (2008) 1533–1540.
 46. M. Nazarov, **B. Tsukerblat**, Do Young Noh, Vibronic coupling parameters and Stokes shift in thiogallate phosphors, *J. Physics and Chemistry of Solids*, 69(2008) 2605-2612.
 47. S.I. Klokishner, O.S. Reu, A.V. Palii, S.M. Ostrovsky, B.S. Tsukerblat, E. Towe, Vibronic model of absorption spectra in CdSe-Cr(II), *Moldavian Journal of the Physical Sciences* (2008) 288-297
 48. **B. Tsukerblat**, Group-theoretical approaches in molecular magnetism: metal clusters, *Inorganica Chimica Acta*, 361 (2008) 3746–3760.
 49. S. Bertaina, S. Gambarelli, T.Mitra, **B. Tsukerblat**, A. Müller, B. Barbara, Quantum oscillations in a molecular magnet, *Nature*, 453 (2008) 203-206.
 50. A.V. Palii, O.S. Reu, S. M. Ostrovsky, S.I. Klokshner, **B.S. Tsukerblat**, Jiang-Gao Mao, A.V. Prosvirin, Han-Hua Zhao, K.R. Dunbar, A Highly Anisotropic Cobalt (II) Based Single Chain Magnet: Exploration of Spin-Canting in an Antiferromagnetic Array, *J. Am. Chem. Soc.* 130 (2008) 14729–14738.
 51. N. Kirchner, Joris van Slageren, **B. Tsukerblat**, O. Waldmann, M. Dressel, Antisymmetric Exchange Interactions in Ni_4 Clusters, *Phys. Rev.B*, 78 (2008) 094426.
 52. M. Nazarov, **B. Tsukerblat**, C. C. Byeon, I. Arellano, E.-J. Popovici, Do Young Noh, Polarization selection rules and optical transitions in terbium activated yttrium tantalate phosphor under X-ray, VUV and UV excitations, *Applied Optics*, 48(2009) 17-21.
 53. J. M. Clemente-Juan, J. J. Borrás-Almenar, E. Coronado, A. V. Palii, **B.S. Tsukerblat**, High-Nuclearity Mixed Valence Clusters and Mixed Valence Chains: General Approach to the Calculation of the Energy Levels and Bulk Magnetic Properties, *Inorganic Chemistry*, 48 (2009) 4557-4568.
 54. J.M. Clemente-Juan, J.J. Borrás-Almenar, E. Coronado, A.V. Palii, **B.S. Tsukerblat**, MVPACK: a package to calculate energy levels and magnetic properties of high nuclearity mixed valence clusters, *J. Compt. Chemistry*, 31(2010) 1321-1332.
 55. A.V. Palii, O.S. Reu, S.M. Ostrovsky, S.I. Klokshner, **B.S. Tsukerblat**, M. Hilfiger, M. Shatruk, A. Prosvirin, K.R. Dunbar, Highly anisotropic exchange interactions in a trigonal bipyramidal cyanide bridged $\text{Os}^{\text{III}}_2\text{Ni}^{\text{II}}_3$ cluster, *J. Phys. Chem.A* 113 (2009) 6886–6890.
 56. M. Nazarov, **B. Tsukerblat**, Do Young Noh, New highly efficient green phosphor based on strontium thiogallate, *Indian Journal of Engineering & Materials Sciences*, 16 (2009) 147-150.
 57. A. Tarantul, **B. Tsukerblat**, Magnetic relaxation in V_{15} cluster: Direct spin-phonon transitions, *Inorg. Chim. Acta*, 363 (2010) 4361–4367
 58. L. Falkovskaya, A. Fishman, V. Mitrofanov, **B. Tsukerblat**, Magneto-optical activity of spinel type crystals with complex mixed-valence lattice irregularities, *Physics Letters, A* 374 (2010) 3067–3075.
 59. **B. Tsukerblat**, in: EPR at the Ben-Gurion University of the Negev, *EPR News Letter*, 20 (2010), 18-19.
 60. L.D. Falkovskaya, A.Ya. Fishman, V.Ya. Mitrofanov, **B.S. Tsukerblat**, Faraday Rotation Caused by Mixed Valence Centers in Magnetic Crystals, *Solid State Phenomena*, 168-169 (2011) 541-544.
 61. A. Tarantul, **B. Tsukerblat**, Direct and two-phonon Orbach-Aminov type spin-lattice relaxation in molecular magnet V_{15} , *Journal of Physics: Conference Series*, 324 (2011) 012007, 1-17.
 62. S. Klokishner, S. Ostrovsky, A. Palii, M. Shatruk, K. Funck, K. R. Dunbar,

- B. Tsukerblat**, A vibronic model for cooperative spin-crossover in pentanuclear $\{[M^{III}(CN)_6]_2[M^{II}(tmphen)_2]_3\}$ ($M/M' = Co/Fe, Fe/Fe$) compounds, *J. Phys. Chemistry C*, 115 (2011) 21666–21677.
63. A. Palii, **B. Tsukerblat**, J. M. Clemente-Juan, E. Coronado, Coherent manipulation of polarization in mixed-valence compounds by electric pulse via Landau-Zener transitions, *J. Phys. Chemistry C*, 116 (2012) 4999-5008.
64. A. Palii, **B. Tsukerblat**, J. M. Clemente-Juan, A. Gaita-Ariño, E. Coronado, Manipulation of the spin in single molecule magnets via Landau-Zener transitions, *Phys. Rev. B*, 84 (2011)184426-1-11.
65. A. Palii, **B. Tsukerblat**, J.M. Clemente-Juan, E. Coronado, Coherent spin dependent Landau-Zener tunneling in mixed valence dimers, in Series: *Progress in Theoretical Chemistry and Physics*, Vol. 23: *Vibronic Interactions and the Jahn-Teller Effect*, (2011) 329-350.
66. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, A symmetry adapted approach to the dynamic Jahn-Teller problem, in Series: *Progress in Theoretical Chemistry and Physics*, Vol. 23: *Vibronic Interactions and the Jahn-Teller Effect*, (2011) 39-58
67. S. Ostrovsky, A. Palii, S. Klokishner, M. Shatruk, K. Funck, C. Achim, K. R. Dunbar, **B. Tsukerblat**, Vibronic approach to the cooperative spin transitions in crystals based on cyano-bridged pentanuclear M_2Fe_3 ($M=Co, Os$) clusters, in Series: *Progress in Theoretical Chemistry and Physics*, Vol. 23: *Vibronic Interactions and the Jahn-Teller Effect*, 2011 (379-396).
68. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, A. Gaita-Ariño, E. Coronado, A Symmetry Adapted Approach to the Dynamic Jahn-Teller Problem: Application to Mixed-Valence Polyoxometalate Clusters with Keggin Structure, *Int. J. Quantum Chemistry*, 112 (2012) 2849–2980.
69. C. Bosch-Serrano, Juan M. Clemente-Juan, E. Coronado, A. Gaita-Ariño, A. Palii, **B. Tsukerblat**, Electric field control of the spin state in mixed-valence magnetic molecules, *ChemPhysChem*, 13 (2012) 2662-2665.
70. C. Bosch-Serrano, J.M. Clemente-Juan, E. Coronado, A. Gaita-Ariño, A. Palii, **B. Tsukerblat**, Molecular analog of multiferroics: electric and magnetic field effects in many-electron mixed-valence dimers, *Phys.Rev.B* 86 (2012) 024432-1-11.
71. J.H. Shim, S. Bertaina, S. Gambarelli, T. Mitra, A. Müller, E.I. Baibekov, B. Z. Malkin, **B. Tsukerblat**, B. Barbara, Decoherence window of Rabi oscillations in the single molecular magnet V_{15} , *Phys. Rev. Lett.*, 109 (2012) 050401-1-5.
72. J.M. Clemente-Juan, A. Gaita-Ariño, J.J. Borrás-Almenar, E. Coronado, A. Palii, **B. Tsukerblat**, Electronic and Vibronic Problems of Nanosized Mixed Valence Clusters: Advances and Challenges, *J Phys C-Conf. Ser.* 428 (2013).
73. V. V. Maslyuk, I. Mertig, O.V. Farberovich, A. Tarantul, **B. Tsukerblat**, Electronic and Spin Structures of Polyoxometalate V_{15} from First-Principles Non-Collinear Molecular Magnetism Approach, *Eur. J. Inorg. Chem.* 2013, 1897–1902.
74. M. Nazarov, M.G. Brik, D. Spassky, B. Tsukerblat, A. Nor Nazida, M.N. Ahmad-Fauzi, Structural and electronic properties of $SrAl_2O_4:Eu^{2+}$ from Density Functional Theory Calculations, *J. Alloys & Comp.*, 573 (2013) 6–10.
75. A. Palii, C. Bosch-Serrano, J. M. Clemente-Juan, E. Coronado, **B. Tsukerblat**, Microscopic Approach to Dissipative Electron Transfer Dynamics in Mixed Valence Dimers: Solid State Problem, *J. Chem. Phys.*, 139 (2013) 044304-11.
76. A. M. Nazarov, M.G. Brik, D. Spassky, **B. Tsukerblat**, A. Palii, A. Nor Nazida, M.N. Ahmad-Fauzi, *Physics Letters*, 377 (2013) 3170–3178.

77. J. M. Clemente-Juan, A. Palii, E. Coronado, **B. Tsukerblat**, Symmetry Assisted Consideration of the Dynamic Pseudo Jahn-Teller Problem in Mixed-Valence Species with Square Topology: Intervalence Optical Bands *Optics and Spectroscopy*, 116 (2014) 159–166.
78. J. M. Clemente-Juan, A. Palii, **B. Tsukerblat**, E. Coronado, Electric Field Control of the Optical Properties in Magnetic Mixed-Valence Molecules, *Chemical Science*, 5, (2014) 3598–3602
79. M. Martens, J. van Tol, N.S. Dalal,; S. Bertaina, B. Barbara, **B. Tsukerblat** A. Mueller, S. Garai, S. Miyashita, I. Chiorescu, *Phys. Rev. B*, 89, 195439 (2014).
80. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, Self-trapping of charge polarized states in four-dot molecular quantum cellular automata: bi-electronic tetrameric mixed-valence species, *Pure and Applied Chemistry*, 87(3) (2015) 271–282.
81. A. Palii, J. M. Clemente-Juan, E. Coronado, **B. Tsukerblat**, Electric field control of spin-dependent dissipative electron transfer dynamics in mixed-valence molecules, *J. Phys. Chem. C*, 119 (2015) 7911-7921.
82. A. Palii, S. Ostrovsky, O. Reu, **B. Tsukerblat**, S. Decurtins, S.-X.Liu, S. Klokishner, Microscopic Theory of Cooperative Spin Crossover: interaction of Molecular Modes with Phonons, *J. Chemical Physics*, 143 (2015) 084502-084512.
83. A. Palii, **B. Tsukerblat**, J.M. Clemente-Juan, S. Aldoshin, Localization-delocalization in bridged mixed-valence metal clusters: vibronic PKS model revisited, *J. Phys. Chem.*, 119 (2015) 9844-9856.
84. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Mixed-valence molecular four-dot unit for quantum cellular automata: vibronic self-trapping and cell-cell response, *J. Chem. Physics*, 143 (2015)134307-15.

International Conferences (since 2002)

1. K. Dunbar, Eric Schelter, S.M. Ostrovsky, V.Yu. Mirovitsky, A.V. Palii, **B. Tsukerblat**, Jahn-Teller effect in heavy d^1 and d^5 ions: magnetic properties, *XVI Jahn-Teller Conference*, Leuven, Belgium, Aug.26-Sept.1, 2002. Book of Abstracts, p.28.
2. L.D. Falkovskaya, A.Ya.Fishman, M.A. Ivanov, V.Ya. Mitrofanov, **B. Tsukerblat**, Peculiarities of NMR spectral distribution of Jahn-Teller centers in magneto-ordered crystals, *XVI Jahn-Teller Conference*, Leuven, Belgium, Aug.26-Sept. 1, 2002. Book of Abstracts, p.57.
3. E. Coronado, S. Klokishner, O. Reu, **B. Tsukerblat**, A pseudo Jahn-Teller model of the photochromic effect in sodium nitroprusside, *XVI Jahn-Teller Conference*, Leuven, Belgium, Aug.26-Sept. 1, 2002. Book of Abstracts, p.66.
4. L. Kulyuk, A. Haroun, V. Mirovitskii, A. Nateprov, A. Palii, V. Tezlevan, S. Ostrovsky, **B. Tsukerblat**, A pseudo Jahn-Teller model of sulphide spinels doped with chromium ions: radiative properties, *XVI Jahn-Teller Conference*, Leuven, Belgium, Aug.26-Sept. 1, 2002, Book of Abstracts, p.79 (invited).
5. J.J. Borrás-Almenar, E. Coronado, J.M. Clemente-Juan, A.V. Palii, **B. Tsukerblat**, Magnetic exchange in clusters of orbitally degenerate ions: computational approach and physical results, *Computational Modeling and Simulation of Materials, 2nd International Conference*, Florence, Italy, July, 14-19, 2002 (invited).
6. Kim Dunbar, Eric Schelter, S. M. Ostrovsky, V. Yu. Mirovitsky, A.V. Palii, **B. Tsukerblat**, Magnetic properties of a complex Re(II) ion: crystal field model, Jahn-Teller effect, *VIIth International Conference on Molecule-based Magnets*, Valencia, Spain, 5-10 October, 2002, Abstracts, A-94.
7. J.J. Borrás-Almenar, E. Coronado, J.M. Clemente-Juan, A.V. Palii, **B. Tsukerblat**, Problem of the magnetic anisotropy in orbitally degenerate exchange and mixed-valence clusters, *VIIth*

- International Conference on Molecule-based Magnets*, Valencia, Spain, 5-10 October, 2002, Abstracts, F-13 (*contributed*).
8. A. V. Palii, J. M. Clemente-Juan, J. J. Borrás-Almenar, E. Coronado, **B. Tsukerblat**, Orbitally dependent kinetic exchange in Co(II) pairs: Microscopic theory of the magnetic anisotropy, *VIIth International Conference on Molecule-based Magnets*, Valencia, Spain, 5-10 October, 2002, Abstracts, F-24.
 9. E. Coronado, S. Klokishner, O. Reu, **B. Tsukerblat**, Vibronic model of the photochromic effect in sodium nitroprusside, *VIIth International Conference on Molecule-based Magnets*, Valencia, Spain, 5-10 October, 2002, Abstracts, F-26.
 10. **B. Tsukerblat**, Exchange anisotropy in orbitally degenerate metal clusters-prospects for single molecular magnets, *Annual meeting of the Israel Chemical Society*, Jan., 28-29, Book of Abstracts, 2003 (*invited talk*).
 11. K. Dunbar, E. Schelter, A. Palii, S. Ostrovsky, V. Mirovitskii, J. Hudson, M. Omary, S. Klokishner, **B. Tsukerblat**, *69th annual meeting of the Israel Chemical Society*, February 2004, 2-3, Book of Abstracts, p. 269, 2003.
 12. K. Dunbar, E. Schelter, A. Palii, S. Ostrovsky, V. Mirovitskii, S. Klokishner, **B. Tsukerblat**, Highly anisotropic metal ions in view of the magnetic bistability, *20th Austin Symposium on Molecular Structure*, March 7-9, Austin, USA, 2004.
 13. A. V. Palii, S. M. Ostrovsky, S. Klokishner, **B. Tsukerblat**, J. R. Galán-Mascarós, C. P. Berlinguette, K. R. Dunbar, the role of the orbitally degenerate Mn(III) ions in the magnetic bistability of the Mn₅-cyanide cluster, *2nd International Conference on Material Science and Condensed Matter Physics*, Kishinev, Moldova, September, 21- 26, 2004, Book of Abstracts, p.116 (*invited talk*).
 14. S. V. Kunitsky, S. M. Ostrovsky, A. V. Palii, S. I. Klokishner, **B. Tsukerblat**, J. R. Galán-Mascarós, C. P. Berlinguette, K. R. Dunbar, Control of the energy barrier in cyanide based single molecule magnets containing metal ions with unquenched orbital angular momenta: prospects for design of single molecule magnets with high blocking temperatures, *2nd International Conference on Material Science and Condensed Matter Physics*, Kishinev, Moldova, September, 21- 26, 2004, Book of Abstracts, p.117.
 15. S. V. Kunitsky, A. V. Palii, **B. Tsukerblat**, J. M. Clemente-Juan, E. Coronado, MVprog: a program to calculate energy levels and magnetic properties of high nuclearity mixed valence clusters, *2nd International Conference on Material Science and Condensed Matter Physics*, Kishinev, Moldova, September, 21- 26, 2004, Book of Abstracts, p.115.
 16. K. R. Dunbar, E. J. Schelter, S. I. Klokishner, S. M. Ostrovsky, V. Yu. Mirovitskii, A. V. Palii, J. M. Hudson, M. A. Omary, **B. Tsukerblat**, Origin of anomalously strong temperature independent paramagnetism of two Re(II) compounds: [Re(Triphos)(CH₃cn)₃][Bf₄]₂ and [Et₄n][Re(Triphos)(cn)₃], *2nd International Conference on Material Science and Condensed Matter Physics*, Kishinev, Moldova, Sept., 21- 26, 2004, Book of Abstracts, p.107.
 17. S. I. Klokishner, **B. S. Tsukerblat**, O. S. Reu, A. V. Palii, S. M. Ostrovsky, Jahn-Teller coupling in II-VI semiconductors doped with Cr²⁺ ions, *2nd International Conference on Material Science and Condensed Matter Physics*, Kishinev, Moldova, September, 21- 26, 2004, Book of Abstracts, p.97.
 18. M. V. Nazarov, D. Y. Jeon, E. J. Popovici, **B. Tsukerblat**, Luminescence properties of europium-terbium double activated calcium tungstate phosphor, *Thirteenth International Symposium on the Physics and Chemistry of Luminescent Materials*, October 3-October 8, 2004. Honolulu.
 19. E. Coronado^a, A. V. Palii, **B. Tsukerblat**, J. M. Clemente-Juan, Why is the Magnetic Exchange Isotropic in Cs₃Yb₂Cl₉ and Cs₃Yb₂Br₉ Crystals?, *International Conference on Molecule-based Magnets*, Tsukuba, Japan, October, 2004, Book of Abstracts, p.256.
 20. L. D. Falkovskaya, A. Ya. Fishman, V. Ya. Mitrofanov, **B. Tsukerblat**, Spectral

- distribution of NMR frequencies in mixed-valence complexes: electric dipole absorption, Proceedings of the *Third International Conference on Mathematical Modeling and Computer Simulation of Materials Technologies*, Part 3, pp. 21-31, Ariel, Israel, 2004.
21. A. V. Palii, S. M. Ostrovsky, S. V. Kunitsky, S. I. Klokishner, **B. Tsukerblat**, J. R. Galán-Mascarós, K. R. Dunbar, Single molecule magnet Mn₅-cyanide- control of the magnetic anisotropy, Proceedings of the *Third International Conference on Mathematical Modeling and Computer Simulation of Materials Technologies*, Part 3, pp.118-125, Ariel, Israel, 2004.
 22. S.I.Klokishner, **B. Tsukerblat**, O.Reu, A.V.Palii, Jahn-Teller vibronic coupling in CdSe doped with Cr²⁺ ions, *70th annual meeting of the Israel Chemical Society*, February 2005, Book of Abstracts, p. 154, 2005 (invited, plenary).
 23. S.I. Klokishner, **B. Tsukerblat**, O.S. Reu, A.V. Palii, S.M. Ostrovsky, Optical Jahn-Teller effect in II-VI compounds doped with Cr²⁺ ion, 4th Israeli-Russian Bi-National Workshop "Optimization of composition, structure and properties of metals, oxides, composites, nano- and amorphous materials", Jerusalem, 19-23 June, 2005 (invited).
 24. **B. Tsukerblat**, A. Tarantul, A. Müller, Mesoscopic molecular cluster V₁₅: crossover of the magnetic levels and adiabatic magnetization, *71st annual meeting of the Israel Chemical Society*, Tel-Aviv, February,27-28, 2006, Book of Abstracts, p.54.
 25. A. Tarantul, **B. Tsukerblat**, A. Müller, Mesoscopic cluster V₁₅: antisymmetric exchange and symmetry breaking in a three-spin model, *71st annual meeting of the Israel Chemical Society*, Tel-Aviv, February,27-28, 2006, Book of Abstracts, p.226.
 26. **B. Tsukerblat**, A. Palii, S. Ostrovsky, S. Kunitsky, S. Klokishner, K.Dunbar, Control of the barrier in cyanide based single molecule magnets: a theoretical analysis, *71st annual meeting of the Israel Chemical Society*, Tel-Aviv, February,27-28, 2006, Book of Abstracts, p.144.
 27. **B. Tsukerblat**, Z. Dashevsky, R. Shneck, Elias Towe, S.Klokishner, O. Reu, A. Palii, S. Ostrovsky^d, O. Etziony, Vibronic optical band in CdSe-Cr(II): Dynamic Jahn-Teller effect, *71st annual meeting of the Israel Chemical Society*, Tel-Aviv, February,27-28, 2006, Book of Abstracts, p.240.
 28. A. Tarantul, **B. Tsukerblat**, A. Müller, Nanometer-scale molecular cluster V₁₅: EPR and adiabatic magnetization, *The Fourth International Conference on Mathematical Modeling and Computer Simulation of Materials Technologies*, Ariel, 11-15 September, 2006.
 29. B. Tsukerblat, A. Tarantul, A. Müller, Mesoscopic cluster V₁₅: magnetic and vibronic Interactions, *International Symposium on the Jahn-Teller effect*, Italy, Trieste August 28-31, 2006 (plenary-invited).
 30. S.I.Klokishner, O.S.Reu, A.V.Palii, S.M.Ostrovsky, L.L.Kulyuk, **B. Tsukerblat**, Jahn-Teller coupling in spinel-type crystals doped with transition metal ions, *International Symposium on the Jahn-Teller effect*, Italy, Trieste August 28-31, 2006 (poster).
 31. **B. Tsukerblat**, A. Tarantul, A. Müller, Nanoscopic cluster V₁₅: high-field EPR and magnetization at ultra-low temperatures, *The XV-th Conference "Physical Methods in Coordination and Supramolecular Chemistry"*, Kishinev, Moldova, Sept., 27 – Oct., 1, 2006 (plenary-invited)
 32. S. Klokishner, S. Ostrovsky, A.Palii, **B. Tsukerblat**, K. Dunbar, Cyanide based single molecule magnets: magnetic properties and magnetic relaxation, *The XV-th Conference "Physical Methods in Coordination and Supramolecular Chemistry"*, Kishinev, Moldova, Sept., 27 – Oct., 1, 2006 (section lecture).
 33. A. Tarantul, **B. Tsukerblat**, A.Müller, Nanometer-scale molecular cluster V₁₅: EPR and adiabatic magnetization, *4th International Conference on Mathematical Modeling and Computer Simulation of Materials Technologies*, Ariel, Israel, 11-15 of September, 2006.
 34. **B. Tsukerblat**, O. Etziony, S. Klokishner, O. Reu, A. Palii, S. Ostrovsky, E. Towe, Vibronic optical bands in CdSe-Cr(II): Semiclassical approach and dynamic Jahn-Teller problem, *4th International Conference on Mathematical Modeling and Computer Simulation of*

- Materials Technologies*, Ariel, Israel, 11-15 Sept., 2006 (lecture).
35. N. Kirchner, J. van Slageren, **B. Tsukerblat**, O. Waldmann, Modeling of non-Heisenberg exchange interactions in tetrameric Ni(II) clusters of S_4 symmetry, *European Workshop-Models and Theory for Molecular Magnetism*, Lyon, France, July 18 - 21 2006.
 36. S.M. Ostrovsky, A.Palii, S.I. Klokishner, **B. Tsukerblat**, E.J. Schelter, A.V. Prosvirin, K.R. Dunbar, Magnetic anisotropy in the octanuclear Mn_4Re_4 single molecular magnet: quantum-spin and classical-spin approaches, *European Conference on Molecular Magnetism*, Tomar, Portugal, October, 10-15, 2006 2006.
 37. S.I. Klokishner, S.M. Ostrovsky, O.S. Reu, A.Palii, **B. Tsukerblat**, K.R. Dunbar, Orbital effects in single molecular magnets band single molecule chains, *European Conference on Molecular Magnetism*, Tomar, Portugal, October, 10-15, 2006 2006.
 38. A. Tarantul, **B. Tsukerblat**, A. Müller, Mesoscopic molecular cluster V_{15} : the Unique system on the border of quantum and classical world, *72nd Annual Meeting of the Israel Chemical Society*, Tel-Aviv, February, 2007.
 39. N. Zamstein, A. Tarantul, **B. Tsukerblat**, Ferromagnetic exchange interactions for Cu_6^{12+} and Mn_6^{12+} hexagons D_{3d} -symmetric polyoxotungstates *72nd Annual Meeting of the Israel Chemical Society*, Tel-Aviv, February, 2007.
 40. **B. Tsukerblat**, A. Tarantul, N. Zamstein, S.I. Klokishner, A.Palii, S.M. Ostrovsky, O. Reu, A. Fishman, V. Mitrofanov, Nanosize molecular magnets: Application of irreducible tensor operator technique, *Sixth Israeli-Russian Bi-National Workshop 2007 "Optimization of the Composition, Structure and Properties of Metals, Oxides, Composites, Nano and Amorphous Materials"*, Jerusalem, 24 -28 June, 2007 (plenary).
 41. **B. Tsukerblat**, A. Tarantul, A. Müller, Nanoscopic cluster V_{15} : spin frustration and antisymmetric exchange, *International Symposium on Crystalline Organic Metals, Superconductors, and Ferromagnets*, Peñiscola, Spain, 24-29 September, 2007 (invited).
 42. A.Tarantul, **B. Tsukerblat**, A.Müller, Magnetic Exchange Interactions in the Molecular Magnet V_{15} , *Minerva Foundation Symposium "Nano-, Macro-, and Supra-Molecular Materials and Phenomena"*, Kibbutz Chafetz Chaim, Israel, 18-19 September, 2007, Abstracts, p.7 (contributed talk).
 43. N. Zamstein, A. Tarantul, **B. Tsukerblat**, Magnetic excitations and EPR of Cu_6 hexagons embedded in D_{3d} -symmetric polyoxotungstates, *International Symposium "Magnetic Resonance in Condensed Matter"*, Book of Abstracts, pp.38-39, Chisinau, Moldova, October 11-12, 2007 .
 44. S. Klokishner, S. Ostrovsky, O. Reu, A. Palii, **B. Tsukerblat**, K. Dunbar Theoretical modeling of single molecule magnets and single chain magnets containing metal ions with unquenched orbital angular momenta. *International Symposium "Magnetic Resonance in Condensed Matter"*, Book of Abstracts, p.49, Chisinau, Moldova, October 11-12, 2007 .
 45. M. Nazarov, **B. Tsukerblat**, Do Young Noh, Multiphase green phosphor $\{SrGa_2S_4 + MgGa_2O_4\}:Eu^{2+}$: synthesis and luminescence *The 15th International Conference on Luminescence and Optical Spectroscopy of Condensed Matter (ICL'08)*, Lyon, France, 7-11 July, 2008.
 46. A.Tarantul, **B. Tsukerblat**, A.Müller, Molecular magnet V_{15} : on the border of quantum and classical worlds, *The 53rd Annual Meeting of the Israel Physical Society*, Weizmann Institute of Science, Abstracts, p.145, Rehovot, December, 9th, 2007.
 47. A. Palii, O. Reu, S. Ostrovsky, S. Klokshner, **B. Tsukerblat**, Anisotropic exchange interaction in a spin-canted single chain magnet based on Co(II) ions, *International Conference on Mathematical Modeling and Computer Simulation of Metal Technologies (MMT-2008)*, Ariel, Israel, Ariel, 8-12 Sept. 2008 (plenary, invited).
 48. L.D. Falkovskaya, A.Ya. Fishman, V. Ya. Mitrofanov, **B. Tsukerblat**, Magneto optical

- phenomena in clusters of 3d mixed valence ions in oxides. Effect of nanocrystal state, *International Conference on Mathematical Modeling and Computer Simulation of Metal Technologies (MMT-2008)*, Ariel, Israel, 8-12 Sept. 2008.
49. **B. Tsukerblat**, A. Tarantul, A. Müller, Nanoscopic cluster V₁₅: Spin-frustration and magnetism, *38th International conference on Coordination Chemistry*, Jerusalem, Israel, 20-25 July, 2008 (*section talk*).
 50. S.I. Klokishner, A. V. Palii, S. M. Ostrovsky, K. R. Dunbar, **B. Tsukerblat**, Cyanide based clusters of orbitally degenerate metal ions, *38th International conference on Coordination Chemistry*, Jerusalem, Israel, 20-25 July, 2008.
 51. B.S. Tsukerblat, S.I. Klokishner, A. V. Palii, S. M. Ostrovsky, K. R. Dunbar, Cyanide based clusters of orbitally degenerate metal ions: towards control of the magnetic barrier, *Austin Symposium on Molecular Structure*, Austin, USA, Mar. 1-4, 2008 (*plenary, invited*).
 52. M.Nazarov, **B. Tsukerblat**, D.Y. Noh, New highly efficient phosphor based upon strontium thiollate, *International Conference on luminescence and its applications*, India, Feb. 13-16, 2008.
 53. M.Nazarov, **B. Tsukerblat**, D.Y. Noh, New Multiphase green phosphor {SrGa₂S₄+MgGa₂O₄}:Eu²⁺: synthesis and luminescence, *The 15th International Conference on Luminescence and Optical Spectroscopy of Condensed Matter (ICL'08)* Lyon, France, 7-11 July, 2008 Abstract book, p.509
 54. M. Nazarov, **B. Tsukerblat**, Do Young Noh "Green phosphor with improved properties", *The 14th International workshop on inorganic and organic electroluminescence EL-2008*, Rome, 9-12 September 2008, Italy. Abstract book, p.78
 55. B. Tsukerblat, Jahn-Teller effect in molecular magnetism: an overview, *XIX International Symposium on the Jahn-Teller Effect: Vibronic Interactions and Orbital Physics in Molecules and in the Condensed Phase*, Heidelberg, 25th - 29th August 2008 (*plenary invited*).
 56. J.M. Clemente-Juan, J. J. Borrás-Almenar, E. Coronado, A. V. Palii, **B. Tsukerblat**, "MVPACK: a package to calculate energy levels and magnetic properties of high nuclearity mixed valence clusters, PARA 2008: *9th International Workshop on State-of-the-Art in Scientific and Parallel Computing*, May 13-16, 2008, NTNU, Trondheim, Norway.
 57. **B. Tsukerblat**, S. Klokishner, A. Palii, S. Ostrovsky, K. Dunbar, Beyond spin model: exchange coupling in metal clusters with unquenched orbital angular momenta, *2nd Workshop on "Current trends in nanoscopic and mesoscopic magnetism"*, Delphi, Greece, Sept. 1-5, 2008 (*invited talk*).
 58. **B. Tsukerblat**, Theoretical approaches in molecular magnetism: retrospective and state of the art, *International Conference dedicated to the 50th anniversary from the foundation of the Institute of Chemistry*, Kishinev, 26-28 May, 2009, Moldova (*plenary, invited*).
 59. A.V. Palii, O.S. Reu, S. M. Ostrovsky, S. I. Klokshner, **B.S. Tsukerblat**, M. Hilfiger, M. Shatruk, A. Prosvirin, K.R. Dunbar, Highly anisotropic exchange coupling in a trigonal bipyramidal cyanide bridged Os^{III}₂Ni^{II}₃ cluster, *International Conference dedicated to the 50th anniversary from the foundation of the Institute of Chemistry*, Kishinev, 26-28 May, 2009, Moldova.
 60. A.V. Palii, O.S. Reu, S.M. Ostrovsky, S.I. Klokishner, **B.S. Tsukerblat**, Z.-M. Sun, J.-G. Mao, A.V. Prosvirin, H.-H. Zhao, K.R. Dunbar, Role of spin-canting in single chain magnet behavior of antiferromagnetically coupled zig-zag Co(II)-compound, *International Conference dedicated to the 50th anniversary from the foundation of the Institute of Chemistry*, Kishinev, 26-28 May, 2009, Moldova.
 61. J. M. Clemente-Juan, J.J. Borrás-Almenar, A. V. Palii, **B. Tsukerblat**, E. Coronado, A.V. Palii, B.S. Tsukerblat, High-nuclearity mixed valence clusters and mixed valence

- chains: general approach to the calculations of the energy levels and bulk magnetic properties, *International Conference dedicated to the 50th anniversary from the foundation of the Institute of Chemistry*, Kishinev, 26-28 May, 2009, Moldova (invited).
62. **B. Tsukerblat**, Symmetry in molecular magnetism: multi-spin systems, *European Center for Theoretical Studies in Nuclear Physics and Related Areas, Workshop*, Trento, July 6-10, 2009 (plenary, invited).
 63. J.J. Borrás-Almenar, S. Cardona-Serra, J.M. Clemente-Juan, E. Coronado, A.V. Palii, **B. Tsukerblat**, High-nuclearity mixed-valence clusters and mixed-valence chains, *European Conference on Molecular Magnetism*, ECMM, Wroslaw, Poland, 4-7 Oct., 2009.
 64. **B. Tsukerblat**, The nanoscopic cluster V_{15} : a unique magnetic polyoxometalate, *Second European School on Molecular Nanoscience*, Benidorm, Spain, 25-29 October, 2009 (invited)
 65. S.I. Klokishner, S.M. Ostrovsky, A.V. Palii, O.S. Reu, K.R. Dunbar, **B. Tsukerblat**, Model of spin-crossover in $\{[M(III)(CN)_6]_2[M'(II)(tmphen)_2]_3\}$ (M/M'=Co/Fe, Fe/Fe) cluster compounds, *Conference "Spin Crossover-State of the Art in 2010"*, Germany, Bad Durkheim, 29 -31 March, 2010 (DFG-Priority Program SPP1137 "Molecular Magnetism").
 66. **B. Tsukerblat**, J.M. Clemente-Juan, A.Palii, E. Coronado, A Symmetry-Adapted Approach to the Dynamic Jahn-Teller Problem, *XXth International Symposium on the Jahn-Teller Effect*, Fribourg, Switzerland, 16th - 20th, August, 2010 (invited).
 67. S. Ostrovsky, A. Palii, S. Klokishner, M. Shatruk, K. Dunbar, **B. Tsukerblat**, Charge Transfer Induced Spin Transition in Fe-Os Cluster Compounds: a Vibronic Model, *XXth International Symposium on the Jahn-Teller Effect*, Fribourg, Switzerland, 16th - 20th, August, 2010.
 68. S. Klokishner, A. Palii, S. Ostrovsky, O.Reu, P. Tregenna-Piggott, K.Dunbar, **B.Tsukerblat**, Origin of Magnetic Anisotropy in Single Molecule and Single Chain Magnets Containing Ions with Unquenched Orbital Angular Momenta, *XXth International Symposium on the Jahn-Teller Effect*, Fribourg, Switzerland, 16th - 20th, August, 2010.
 69. A. V. Palii, **B. Tsukerblat**, J. M. Clemente-Juan, E. Coronado Single-Molecule Ferroelectrics: Coherent Spin-Dependent Landau-Zener Tunneling, *XXth International Symposium on the Jahn-Teller Effect*, Fribourg, Switzerland, 16th - 20th, August, 2010.
 70. **B. Tsukerblat**, Molecular magnetism: theoretical approaches and some applications, *Doctoral School of Material Science and Technology (DSMST)*, Tartu, Estonia, 28-30, June, 2010 (invited)
 71. S. Klokishner, S. Ostrovsky, A. Palii, K. Dunbar, **B. Tsukerblat**, Cooperative spin crossover in pentanuclear bypyramidal Co_2Fe_3 and Fe_2Fe_3 compounds, IX Russian-Israel Workshop "The Optimization of Composition, Structure and Properties of Metals, Oxides, Composites, Nano- and Amorphous Materials", Belokurikha, Russia, July, 24-29, 2010 (plenary, invited).
 72. **B. Tsukerblat**, Beyond spin model: exchange coupling in metal clusters with unquenched orbital angular momenta, *3rd European School on Molecular Nanoscience*, Miraflores de la Sierra - Madrid, Spain, October 24-29, 2010 (invited).
 73. **B. Tsukerblat**, The nanoscopic spin frustrated cluster V_{15} : an unique polyoxometalate, *3rd Workshop on Current Trends in Molecular and Nanoscale Magnetism*, Orlando, Florida, USA, June, 2010 (plenary, invited).
 74. S. Ostrovsky, A. Palii, S. Klokishner, M. Shatruk, K. Dunbar, **B. Tsukerblat**, Vibronic model of cooperative spin transitions in cluster compounds, *5th International Conference on Materials Science and Condensed Matter Physics -MSCMP 2010*, Kishinev, Moldova, 13-17 Sept., 2010
 75. S. Ostrovsky, A. Palii, S. Klokishner, M. Shatruk, K. Dunbar, **B. Tsukerblat**, A model of spin crossover in $Co(III)_2Fe(II)_3$ cluster compound, *5th International Conference on Materials Science and Condensed Matter Physics -MSCMP 2010*, Kishinev, Moldova,

- 13- 17 Sept. 2010.
76. **B. Tsukerblat**, S. Klokishner, A. Palii, S. Ostrovsky, O. Reu, E. Coronado, J.M. Clemente-Juan, K. Dunbar, Beyond spin model: exchange coupling in metal clusters with unquenched orbital angular momenta, *5th International Conference on Materials Science and Condensed Matter Physics -MSCMP 2010*, Kishinev, Moldova, 13-17 Sept. 2010 (*plenary, invited*).
 77. **B. Tsukerblat**, Towards quantum computing with molecular magnets: Rabi oscillations in the nanoscopic spin frustrated vanadium cluster V_{15} , *76th meeting of the Israel Chemical Society meeting*, Tel-Aviv, Feb. 9-10, 2011 (*invited section lecture*).
 78. S. Ostrovsky, A. Palii, S. Klokishner, K. Dunbar, **B. Tsukerblat**, Vibronic Model for Charge Transfer Induced Spin-Transitions in Pentanuclear $\{[Os(CN)_6]_2[Fe(tmphen)_2]_3\}$ Cluster Compound, *76th meeting of the Israel Chemical Society meeting*, Tel-Aviv, Feb. 9-10, 2011.
 79. A. Tarantul, **B. Tsukerblat**, Study of the Decoherence Processes in V_{15} cluster: spin-phonon relaxation, *76th meeting of the Israel Chemical Society meeting*, Tel-Aviv, Feb. 9-10, 2011.
 80. A. Palii, **B. Tsukerblat**, Juan M. Clemente-Juan, E. Coronado, Beyond the spin model: exchange coupling in molecular magnets with unquenched orbital angular momenta, *7th International Workshop on Nanomagnetism and Superconductivity*, Coma-Ruga (Tarragona), Spain, 3-7 July, 2011 (*plenary, invited*).
 81. A. Tarantul, **B. Tsukerblat**, The nanoscopic spin frustrated molecular magnet V_{15} : EPR and relaxation, *The International Conference "Resonances in Condensed Matter"* devoted to Prof. S.A. Altshuler (24.09.1911-24.01.1983) centenary, Kazan, Russia, June 21-25, 2011 (*plenary, invited*).
 82. **B. Tsukerblat**, The models for high spin cobalt(II) ions in molecular magnetism, *IV European School on Molecular Nanoscience (ESMolNa 2011)*, Peníscola, Spain, 23-28 Oct., 2011 (*invited*).
 83. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, High spin cobalt(II) ions in molecular magnetic materials: theoretical modelling, *4th Workshop on "Current Trends in Molecular and Nanoscale Magnetism"* (CTMNM 2012) Chalkidiki, Greece, June 11-16, 2012 (*plenary, invited*).
 84. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, A. Gaita-Ariño, E. Coronado, Electronic and vibronic problems in nanosized mixed valence clusters: advances and challenges, *XXIst International Symposium on the Jahn-Teller Effect*, 26-31 August 2012, Tsukuba, Japan (*plenary, invited*).
 85. V. Maslyuk, O. Farberovich, I. Mertig, **B. Tsukerblat**, Non-collinear nanomagnets: spin-frustrated Jahn-Teller systems V_{15} and $CrMn_3$ molecules, *XXIst International Symposium on the Jahn-Teller Effect*, 26-31 August 2012, Tsukuba, Japan (*poster*).
 86. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, A. Gaita-Ariño, E. Coronado, Symmetry adapted approach to the dynamic Jahn-Teller problem: application to nanosized mixed-valence systems, *6th International conference on materials science and condensed matter physics*, Kishinev, Moldova, Sept. 11-14, 2012 (*plenary, invited*).
 87. **B. Tsukerblat**, Quantum Computing with Molecular Magnets, *Eleventh Israeli-Russian Bi-National Workshop 2012 "Optimization of the composition, structure and properties of metals, oxides, composites, nano and amorphous materials"*, Chernogolovka, Russia, 10-14 July, 2012 (*invited*).
 88. **B. Tsukerblat**, Non-adiabatic vibronic problem of nanosized mixed valence clusters: advances and challenges, *V European School on Molecular Nanoscience*, Cuenca, Spain, Oct. 28 - Nov. 2, 2012 (*invited*).

89. J.M. Clemente-Juan , A. Gaita-Ariño, E. Coronado, A. Palii , **B. Tsukerblat**, Mixed-Valence Polyoxometalates: Use of Symmetry in the Dynamic Vibronic Problem, *40 International Conference on Coordination Chemistry*, Valencia, Spain, 9-13 Sept, 2012.
90. J.M. Clemente-Juan , A. Gaita-Ariño, E. Coronado, A. Palii , **B. Tsukerblat**, Electric Field Control of the Spin in Mixed-Valence Magnetic Molecules, *40 International Conference on Coordination Chemistry*, Valencia, Spain, 9-13 Sept, 2012.
91. **B. Tsukerblat**, A. Palii , J.M. Clemente-Juan , A. Gaita-Ariño, E. Coronado, Non-adiabatic vibronic problem for double reduced mixed-valence Keggin anion, *2nd Workshop “Frontiers in Metal-Oxide Cluster Science” (FMOCs 2012)*, Lanzarote, Spain, 18-22 November 2012 (invited).
92. M. Nazarov, M.G. Brik, **B. Tsukerblat**, S. C. M. Calyn, A. Nor Nazida, M.N. Ahmad-Fauzi, “Low-temperature Luminescence of Nanosized SrAl₂O₄:Eu²⁺”, *Electroluminescence Conference- EL-2012, Hong Kong 10-14 Dec. 2012*, 34.
93. M.G. Brik, M. Nazarov, **B. Tsukerblat**, S. C. M. Calyn, A. Nor Nazida, M.N. Ahmad-Fauzi, Ab-initio calculations and theoretical study of the electronic structure of SrAl₂O₄:Eu²⁺, *Electroluminescence conference -EL-2012, Hong Kong 10-14 Dec. 2012*.
94. **B. Tsukerblat** , Towards quantum computing with molecular magnets: spin frustrated vanadium cluster V₁₅, *XXIV International Conference on Coordination and Bioinorganic Chemistry* , Smolenice, Slovakia, June 2-7 (plenary, invited).
95. **B. Tsukerblat**, A. Palii, J. M. Clemente-Juan, A. Gaita-Ariño, E. Coronado, Nanosized mixed valence metal clusters: advances and challenges, *The Twelfth Russian-Israeli Bi-National Workshop 2013, “The optimization of composition, structure and properties of metals, oxides, composites, nano and amorphous materials”*, July 8-10, 2013, Jerusalem, Ariel, Israel (Proceedings, pp. 160-173).
96. **B. Tsukerblat**, Quantum computing with molecular magnets, *Second EuCheMS – Inorganic Chemistry Conference*, Jerusalem, 7-11 July, 2013 (invited).
97. B. Tsukerblat, A. Palii , J.M. Clemente-Juan , A. Gaita-Ariño, E. Coronado, Symmetry adapted approach to the dynamic Jahn-Teller problem: advances and challenges, XV Feofilov Symposium that will take place in Kazan, Russia , September, 16-20, 2013.
98. **B. Tsukerblat**, Vibronically assisted optical bands in metal complexes and mixed-valence compounds, Sixth European School on Molecular Nanoscience (ESMolNa- 2013), “A Workshop on 2D Materials”, Cuenca, Spain, 27th Oct.-1st Nov. 2013 (invited).
- 99 **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Electron delocalization/double exchange in polynuclear metal clusters: the theoretical approaches Workshop “*Molecular Magnetism, Jujols VII*”, Max-Planck-Institut, Mülheim an der Ruhr, Germany, Jan. 13-17, 2014.
100. **B.S. Tsukerblat**, A.V. Palii , J.M. Clemente-Juan , E. Coronado, Symmetry assisted approach to the non-adiabatic vibronic problem: advances and challenges, *7th International Conference on Materials Science and Condensed Matter Physics*, 16-19 September, 2014, Chişinău, Moldova
101. A. V. Palii, J.M. Clemente-Juan, E. Coronado, **B. Tsukerblat**, Electric field control of spin-dependent dissipative electron transfer dynamics in magnetic mixed-valence molecules, *7th International Conference on Materials Science and Condensed Matter Physics* ,16-19 September, 2014, Chişinău, Moldova.
102. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Vibronic problems in nanosized mixed- valence clusters: a symmetry assisted approach , 11th Conference on Solid State Chemistry, Trencianske Teplice, Slovakia, July 6-11, 2014.
103. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Molecular implementations of quantum-dot cellular automata: the vibronic problem in mixed-valence tetra-ruthenium species, Eighth International Conference on Material Technologies and Modeling (MMT-2014), July 28-August 01, 2014, Ariel, Israel.

- 104. B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Electron delocalization in nanosized mixed-valence clusters: application to complex polyoxometalates, Workshop “Current Trends in Molecular and Nanoscale Magnetism”, May 26-29, 2014, Larnaca, Cyprus.
- 105. B. Tsukerblat**, A paradigm of quantum-dot cellular automata: molecular implementation, The 7th *European School on Molecular Nanoscience* (ESMolNa 2014) Gandia, Spain, 26th - 30th Oct. 2014.
- 106. A. V. Palii**, S.M. Ostrovsky, O.S. Reu, **B.S. Tsukerblat**, S. Decurtins, S.-X.Liu, S. I. Klokishner, Microscopic Theory of Cooperative Spin Crossover in Molecular Crystals Induced by Ion-Phonon Coupling, *V International Symposium on Strong Nonlinear Vibronic and Electronic Interactions in Solids*, Tartu, 1-3 May, 2015.
- 107. B.S. Tsukerblat**, Molecular quantum dot cellular automata: vibronic localization and cell-cell response, *VIII European School on Molecular Nanoscience*, Paris, France, October 25th – 29th, 2015.
- 108. B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Functional polyoxometalate cluster V12: quantum inverter in one molecule, *COST ACTION PoCheMoN Meeting*, Paris, October 30th - 31st 2015.