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Research publications

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

h-index-31, Sum of times cited -4678 (from *Web of Science*, 05 November, 2017)

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).
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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.
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8. **B. S. Tsukerblat**, S.I. Klokishner, M. I. Belinskii, Mixed-valence exchange clusters, *Materials Science*, 17 (1992) 69-103 (*Guest Editor*: B. Tsukerblat).
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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.
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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*).

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2. A.V. Palii, **B.S. Tsukerblat**, M. Verdager, 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.
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 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.
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 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.
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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 25 – 29, 2015.
108. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Functional polyoxometalate cluster V12: quantum inverter in one molecule, COST ACTION PoCheMoN (*Polyoxometalate Chemistry for Molecular Nanoscience*) Meeting, Paris, October 30th - 31st 2015.
109. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, A new molecular implementation in quantum cellular automata: quantum inverter in one molecule, *The Ninth International Conference: Material Technologies and Modeling*, Ariel University, Ariel, Israel, July 25 – 29, 2016.
110. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, A paradigm of molecular quantum-dot cellular automata, 6th Workshop on "Current Trends in Molecular and Nanoscale Magnetism" (CTMNM 2016) Pylos, Greece, October 10-13, 2016
111. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, A paradigm of quantum-dot cellular automata: molecular implementation, *European Conference on Molecular Spintronics*, Bologna, Italy, 15-18 November 2016.
112. **B. Tsukerblat**, Mixed valency at nanoscale, Conference "Magnetic molecules: a long lasting attraction", Florence, Italy, 14 Nov. 2016.
113. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Jahn-Teller effect in molecular magnetism: basic issues and new trends, *The 23rd International Symposium on the Jahn-Teller Effect*, Tartu, Estonia, Aug. 27-Sept.1, 2016.
114. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, Functionalization of polyoxometalates: quantum cellular automata, *IX European School on Molecular Nanoscience*, Tordesillas, Spain, May, 29-June,3, 2016.
115. D.V. Korchagin, A.V. Palii, E.A. Yureva, A.V. Akimov, E.Ya. Misochko, G.V. Shilov, A.D. Talantsev, R.B. Morgunov, S.M. Aldoshin, **B.S. Tsukerblat**, Field-induced pseudooctahedral cobalt(ii)-based single-ion magnet with easy plane magnetic anisotropy: experimental and theoretical study VII International conference "High-spin molecules and molecular magnets" and X Russian-Japanese workshop "Open shell compounds and molecular spin devices", September 19-23, 2016, Novosibirsk, Russia
116. **B. Tsukerblat**, A. Palii, J.M. Clemente-Juan, E. Coronado, N. Suaud, A paradigm of quantum cellular automata: implementation of molecular magnets, 15th European Conference Physics of Magnetism 2017 (PM'17), Poznań (Poland), June 26-30, 2017.
117. A. Palii, S. Aldoshin, **B. Tsukerblat**, J.M. Clemente-Juan, E. Coronado, Electric field controllable bipartite quantum entanglement in mixed-valence polyoxovanadate [VGe₄O₄₀]⁸⁻, XI Russian-Japanese workshop "Open shell compounds and molecular spin devices", Japan, 12-15 November, 2017.
118. A.Palii, S. Aldoshin, B. Tsukerblat, J.M. Clemente-Juan, A. Gaita-Ariño, E. Coronado, Electric field control of molecular magnetic switching, The 16th Israeli - Russian Bi-

National Workshop 2017, “*The optimization of composition, structure and properties of metals, oxides, oxides, composites, nano and amorphous materials*” , 28-31 July, Ariel, Israel.

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