

Books and chapters:

- 1 „Exchange charge model of crystal field for 3d ions „, in „Optical Properties of 3d Ions in Crystals. Spectroscopy and Crystal Field Analysis”, M.G. Brik, N.M. Avram and C.N. Avram, Tsinghua University Press, Springer –Verlag, Heidelberg, 2013
- 2 “Jahn-Teller effect for 3d ions (orbital triplets in a cubic crystal field)”, in “The Jahn-Teller Effect”, M.G. Brik, N.M. Avram, C.N. Avram, Springer-Verlag, Heidelberg, 2009
- 3 “Laserul vibronic LiCaAlF₆:Cr³⁺”, C. N. Avram, Ed. „Mirton”, Timișoara, 2004
- 4 “Nivelele energetice ale ionilor în cristale”, N. M. Avram, C. N. Avram, Ed. „Mirton”, Timișoara, 2001
- 5 “Fizica mediului” vol. I, II, A.M. Balint, C. N. Avram, Ed. „Mirton”, Timișoara, 1999-2000
- 6 “Elemente de fizică cuantică”, Gh. Drăgănescu, C. N. Avram, Ed. „Politehnica”, Timișoara, 1998

ISI web of knowledge:

1. G. E. Drăgănescu and C. N. Avram, "The time-frequency uncertainty relations for signals," *Physics Essays* **10**, 103–109 (1997).
2. N. M. Avram, G. E. Drăgănescu, and C. N. Avram, "Vibrational coherent states for Morse oscillator," *Journal of Optics B: Quantum and Semiclassical Optics* **2**, 214–219 (2000).
3. N. M. Avram, G. E. Drăgănescu, and C. N. Avram, "Anharmonic coherent states and $E \otimes \epsilon$ Jahn-Teller coupling," *Canadian Journal of Physics* **80**, 563–569 (2002).
4. G. E. Drăgănescu, C. N. Avram, and N. M. Avram, "Anharmonic $T \otimes \epsilon$ Jahn-Teller coupling in LiCaAlF₆: Cr³⁺," *Physics of the Solid State* **44**, 1491–1495 (2002).
5. C. N. Avram and M. G. Brik, "Manifestation of vibronic interaction in the fine structure of Cr³⁺ energy levels in laser crystal LiCaAlF₆:Cr³⁺," *Journal of Luminescence* **102–103**, 81–84 (2003).
6. C. N. Avram, G. E. Drăgănescu, and N. M. Avram, "Jahn-Teller Effect in Laser Crystal LiCaAlF₆: Cr³⁺," *Advances in Quantum Chemistry* **44**, 527–534 (2003).
7. C. N. Avram and G. E. Drăgănescu, "Application of the anharmonic coherent states to the vibronic interaction," *Fortschritte der Physik* **51**, 69–73 (2003).
8. M. G. Brik and C. N. Avram, "Comparative analysis of non-radiative relaxation of Cr³⁺ in LiCaAlF₆ and Al₂O₃ crystals," *Journal of Luminescence* **102–103**, 283–286 (2003).
9. C. N. Avram and M. G. Brik, "Fine structure of V²⁺ energy levels in CsCaF₃:V²⁺," *Journal of Luminescence* **108**, 319–322 (2004).
10. M. G. Brik, C. N. Avram, and I. Tanaka, "Crystal field analysis of energy level structure of LiAlO₂: Cr⁴⁺ and LiGaO₂: Cr⁴⁺," *Physica Status Solidi (B) Basic Research* **241**, 2501–2507 (2004).
11. M. G. Brik, N. M. Avram, and C. N. Avram, "Crystal field analysis of energy level structure of the Cr²⁺ antiferromagnet," *Solid State Communications* **132**, 831–835 (2004).
12. C. N. Avram, M. G. Brik, I. Tanaka, and N. M. Avram, "Electron-phonon interaction in the V²⁺:CsCaF₃ laser crystal: Geometry of the [VF₆]⁴⁻ complex in the 4T_{2g} excited state," *Physica B: Condensed Matter* **355**, 164–171 (2005).
13. M. G. Brik, N. M. Avram, C. N. Avram, and I. Tanaka, "Effects of the spin-triplet states mixture and electron-phonon coupling in Y₃Al₅O₁₂:Cr⁴⁺," *EPJ Applied Physics* **29**, 239–245 (2005).
14. M. G. Brik, N. M. Avram, and C. N. Avram, "Crystal field analysis of the ground and excited state absorption of a Cr⁴⁺ ion in LiAlO₂ and LiGaO₂ crystals," *Central European Journal of Physics* **3**, 508–524 (2005).
15. M. G. Brik, G. E. Drăgănescu, N. M. Avram, and C. N. Avram, "Non-radiative transitions in the anharmonic oscillating field model," *Physica B: Condensed Matter* **364**, 170–179 (2005).
16. M. G. Brik, C. N. Avram, and N. M. Avram, "Calculations of spin Hamiltonian parameters and analysis of trigonal distortions in LiSr(Al,Ga)F₆:Cr³⁺ crystals," *Physica B: Condensed Matter* **384**, 78–81 (2006).
17. M. G. Brik, N. M. Avram, and C. N. Avram, "Comparative crystal field study of Ni²⁺ energy levels in NiCl₂, NiBr₂, and NiI₂ crystals," *Physica B: Condensed Matter* **371**, 43–49 (2006).
18. M. G. Brik, N. M. Avram, and C. N. Avram, "Crystal field analysis of energy level structure of LiAlO₂:V³⁺ and LiGaO₂:V³⁺," *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy* **63**, 759–765 (2006).
19. M. G. Brik, N. M. Avram, and C. N. Avram, "Crystal field studies of the MgAl₂O₄: Ni²⁺ ground and excited state absorption," *Journal of Optoelectronics and Advanced Materials* **8**, 731–736 (2006).
20. N. M. Avram, C. N. Avram, and M. G. Brik, "Spin hamiltonian parameters of Cr³⁺ in LiNbO₃," in (2007), Vol. 899, p. 676.
21. M. G. Brik, N. M. Avram, C. N. Avram, C. Rudowicz, Y. Y. Yeung, and P. Gnutek, "Ground and excited state absorption of Ni²⁺ ions in MgAl₂O₄: Crystal field analysis," *Journal of Alloys and Compounds* **432**, 61–68 (2007).
22. M. G. Brik, N. M. Avram, and C. N. Avram, "Crystal field analysis of Cr³⁺ energy levels in LiGa₅O₈ spinel," *Acta Physica Polonica A* **112**, 1055–1060 (2007).

23. A. Reisz and C. N. Avram, "Geometry of the 4T₂g excited state in Cs₂SiF₆:Mn⁴⁺," *Acta Physica Polonica A* **112**, 829–833 (2007).
24. C. N. Avram, M. G. Brik, and N. M. Avram, "Jahn-Teller effect in the 4T₂g excited state of Cr³⁺ ion in Cs₂NaYF₆ crystal," *Journal of Luminescence* **128**, 982–984 (2008).
25. N. M. Avram, M. G. Brik, and C. N. Avram, "Comparative study of the energy levels structure of Cr³⁺: MIn(WO₄)₂ with M=Na, K, Rb," *Journal of Optoelectronics and Advanced Materials* **10**, 819–822 (2008).
26. N. M. Avram, M. G. Brik, and C. N. Avram, "Electron-phonon interaction in fluoride crystals doped with isoelectronic 3d³ ions (V²⁺, Cr³⁺, Mn⁴⁺)," *Romanian Reports in Physics* **60**, 723–733 (2008).
27. M. G. Brik, C. N. Avram, and N. M. Avram, "Comparative study of crystal field effects for Ni²⁺ ion in LiGa₅O₈, MgF₂ and AgCl crystals," *Journal of Physics and Chemistry of Solids* **69**, 1796–1801 (2008).
28. N. M. Avram, M. G. Brik, C. N. Avram, I. Sildos, and A. M. Reisz, "Jahn-Teller effect and electron-phonon interaction in the 4 T₂ g excited state of Cr³⁺ ion in K₂ LiAlF₆ crystal," *Solid State Communications* **149**, 2070–2073 (2009).
29. M. G. Brik, N. M. Avram, and C. N. Avram, "Comparative crystal field calculations of the Cr³⁺ energy level schemes in ZnAl₂Si₂O₄ and ZnGa₂O₄," *Journal of Materials Science: Materials in Electronics* **20**, S30–S32 (2009).
30. A. E. Nikiforov, V. A. Chernyshev, V. P. Volodin, N. M. Avram, and C. N. Avram, "Ytterbium clusters in fluorite CaF₂," in (2009), Vol. 1131, pp. 96–101.
31. A. M. Reisz and C. N. Avram, "Energy level fine structure of Cr³⁺ Doped in KMgF₃ crystal," in (2009), Vol. 1131, pp. 136–139.
32. M. Vaida and C. N. Avram, "Exchange charge model for Fe³⁺:LiAl₅O₈," *Acta Physica Polonica A* **116**, 541–543 (2009).
33. C. N. Avram, M. G. Brik, and A. S. Gruia, "Theoretical calculations of energy levels scheme of Cr³⁺ - doped LiAl₅O₈ spinel," *Optoelectronics and Advanced Materials, Rapid Communications* **4**, 1127–1130 (2010).
34. M. G. Brik, N. M. Avram, and C. N. Avram, "The Jahn-Teller Effect in Binary Transition Metal Carbonyl Complexes," *Springer Series in Chemical Physics* **97**, 347–370 (2010).
35. A. E. Nikiforov, N. M. Avram, V. A. Chernyshev, V. P. Volodin, C. N. Avram, and M. Vaida, "Rare - Earths centers (Sm³⁺, Eu³⁺, Yb³⁺) in MeF₂ (Me = Ca, Sr, Ba, Cd) crystals," in (2010), Vol. 1262, pp. 98–103.
36. A. M. Reisz, M. G. Brik, C. N. Avram, and N. M. Avram, "Crystal field effects and electron-phonon interaction in K₂LiAlF₆:Cr³⁺," *Physica B: Condensed Matter* **405**, 1244–1247 (2010).
37. N. M. Avram, M. G. Brik, C. N. Avram, and A. S. Gruia, "Crystal field and first principle calculation of optical and electronic properties of ZnCr₂O₄ spinel," in (2011), Vol. 1387, pp. 160–165.
38. M. G. Brik and C. N. Avram, "Exchange charge model and analysis of the microscopic crystal field effects in KAl(MoO₄)₂:Cr³⁺," *Journal of Luminescence* **131**, 2642–2645 (2011).
39. M. Vaida and C. N. Avram, "Modeling the crystal field parameters for Fe³⁺ ions in LiGaTiO₄," in (2011), Vol. 1387, pp. 186–189.
40. N. M. Avram, M. G. Brik, C. N. Avram, M. G. Ciresan, and L. Andreici, "Crystal field analysis and low lying energy levels for Cr³⁺ doped in LiNbO₃," *Romanian Reports in Physics* **64**, 1163–1169 (2012).
41. M. G. Brik, N. M. Avram, and C. N. Avram, "Ab initio calculations of the electronic, structural and elastic properties of Nb₂LiC," *Computational Materials Science* **63**, 227–231 (2012).
42. A. S. Gruia, C. N. Avram, N. M. Avram, and M. G. Brik, "Ab initio calculations of the structural, electronic and elastic properties of K₃CrF₆," *Physica Scripta* (2012).
43. R. Nistora and C. N. Avram, "Dynamic Jahn-Teller effect for V²⁺ in MgO single crystal," *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy* **97**, 778–781 (2012).
44. A. M. Barb, A. S. Gruia, and C. N. Avram, "Modeling of crystal field and spin-Hamiltonian parameters for Ti³⁺:MgO," *Physica B: Condensed Matter* **430**, 64–66 (2013).
45. M. Birdeanu, A.-V. Birdeanu, A. S. Gruia, E. Fagadar-Cosma, and C. N. Avram, "Synthesis and characterization of Zn₃Ta₂O₈ nanomaterials by hydrothermal method," *Journal of Alloys and Compounds* **573**, 53–57 (2013).
46. M. G. Brik, N. M. Avram, and C. N. Avram, "Exchange charge model of crystal field for 3d ions," in *Optical Properties of 3d-Ions in Crystals: Spectroscopy and Crystal Field Analysis* (2013), pp. 29–94.
47. M. G. Brik, A. S. Gruia, C. N. Avram, E.-L. Andreici, and N. M. Avram, "First principles and crystal field calculations of the spectral, structural and electric properties of (Na, Li)VS₂O₆clinopyroxenes crystals," *Physica Scripta* **T162**, (2014).
48. C. N. Avram, A. S. Gruia, M. G. Brik, and A. M. Barb, "Calculations of the electronic levels, spin-Hamiltonian parameters and vibrational spectra for the CrCl₃ layered crystals," *Physica B: Condensed Matter* **478**, 31–35 (2015).
49. N. M. Avram, C. N. Avram, E.-L. Andreici, and A. M. Barb, "Jahn-Teller effect in 4T₂g excited state of Mn²⁺:MgO," *Chemical Physics* **460**, 26–30 (2015).
50. I. Scarlatescu, V. Virag, and C. N. Avram, "Craniospinal irradiation techniques," in (2015), Vol. 1694.
51. A. M. Barb, A. S. Gruia, and C. N. Avram, "Optical Energy Levels Scheme for Co²⁺ doped in K(Mg,Zn)F₃ Fluoroperovskites," *Physica B: Condensed Matter* **482**, 24–27 (2016).