



CURRICULUM VITAE

PERSONAL INFORMATION

Name: Ibrahim Aziz Bsoul

Date of birth/Place: Aug 11, 1971. Irbid-Jordan

Nationality: Jordanian

Marital Status: Married

Languages: Arabic, English and Russian

Address: Dep. of Physics, Al al-Bayt University,
P. O. box 130040, Mafraq, 25113, Jordan

Tel. (work): +962-2-6297000 (EXT. 3588)

Mobile: +962-779636357 and +962-795313559

Web site: www.aabu.edu.jo

E-mail: Ibrahimbsoul@yahoo.com

Scholar h-index: 19.

Scopus h-index: 18.



EDUCATION

- 1995-1999: Ph.D. in Solid State Physics (Ferroelectric Materials) Phys. Dep.
Dnepropetrovsk State University, Ukraine.
- 1990-1995: B.Sc. in Physics/Faculty of Science, Dnepropetrovsk State University,
Ukraine.

EMPLOYMENT AND ADMINISTRATIVE POSITIONS

1. Professor, Al al-Bayt University (2016).
2. Associate professor, Al al-Bayt University (2009-2015).
3. Assistant Professor, Al al-Bayt University (2001-2009).



4. Chairman of the Physics Department, Al al-Bayt University (2001-2003).
5. Dean assistant, faculty of Science, Al al-Bayt University (2004.).

TEACHING EXPERIENCE

- General physics (1).
- General physics (2).
- General physics (3).
- Optics.
- Modern physics.
- Electrodynamics (1).
- Electrodynamics (2).
- Mathematical physics (1).
- Mathematical physics (2).
- Thermodynamics.

Skills Offered

- Good background of experimental research in the general field of Ferroelectrics and Magnetic materials.
- Using various computer application programs such as graphical and Analytical programs such as Fullprof Suite for Retvield Refinement, Origin, Easy Plot, Acrobat, Microsoft Words, Power point. Microsoft Photo Editor and others.

AREAS OF RESEARCH

1. Preparation of Nano-Magnetic Systems.
2. Magnetic Characterization of Nano-Magnetic Systems.
3. Interactions Effects and Magnetization Reversal in Nano-Magnetic Systems.
4. Ferroelectric Materials.
5. Experience in Handling the Following Instruments:
 - Ultra Sensitive Vibrating Sample Magnetometer (VSM Micro-Mag).
 - Phillips X'PERT X-Ray Diffractometer.
 - Different Models of Pulverisitte Monomills.
 - Instruments Concerning High Temperature Magnetic Measurements.



- Different Models of High Temperature Carbolite Furnaces.

PUBLICATIONS

1. Al-Hwaitat, Eman S, Dmour, Mohammad K, **Bsoul, Ibrahim**, Albgour, Abeer, Alsalti, Tuqa, Abuawad, Raghad, Alajarmah, Aseel and Al-Buqain, Rola; Investigation of the Structural and Magnetic Properties of BaM Hexaferrites Prepared from Scrap Iron Filings, *Jordan Journal of Physics*, Volume 14, Number 4, 2021, pp. 287-299.
2. Abouzir, El; Belaiche, M; Elansary, M; Ahmani Ferdi, C; **Bsoul, I**; Novel magnetic nanomaterial $\text{Co}_{0.7}\text{Zn}_{0.3}\text{Fe}_{2-x}\text{Gd}_x\text{O}_4$ for nanotechnology applications: experimental and theoretical investigations, *Journal of Materials Science: Materials in Electronics*, Volume 00, Number 00, 2021, pp. 00. <https://doi.org/10.1007/s10854-021-06913-3>
3. Alna'washi, GA; Alsmadi, AM; **Bsoul, I**; Salameh, B; Alzoubi, Gassem M; Shatnawi, M; Hamasha, SM; Mahmood, SH, Investigation on X-ray photoelectron spectroscopy, structural and low temperature magnetic properties of Ni-Ti co-substituted M-type strontium hexaferrites prepared by ball milling technique, *Results in Physics*, Volume 28, 2021, pp. 104574.
4. Al-Hwaitat, Eman S; Dmour, Mohammad K; Masadeh, Ahmad S; Maswadeh, Yazan; **Bsoul, Ibrahim**; Mahmood, Sami H; Effects of pH value and sintering Temperature on the Structural and Magnetic Properties of bariumhexa Ferrites Prepared by Co-Precipitation, *Material Science Research India*, Volume 18, Number 1, 2021, pp. 37-47.
5. Al-Hunaiti, Afnan; Ghazzy, Asma; Sweidan, Nuha; Mohaidat, Qassem; **Bsoul, Ibrahim**; Mahmood, Sami; Hussein, Tareq; Nano-Magnetic NiFe_2O_4 and Its Photocatalytic Oxidation of Vanillyl Alcohol—Synthesis, Characterization, and Application in the Valorization of Lignin, *Nanomaterials*, Volume 11, Number 4, 2021, pp. 1010.
6. Elansary, M; Belaiche, M; Ferdi, C Ahmani; Iffer, E; **Bsoul, I**; Novel ferrimagnetic nanomaterial $\text{Sr}_{(1-x)}\text{La}_x\text{Gd}_y\text{Sm}_z\text{Fe}_{(12-(z+y))}\text{O}_{19}$ for recording media applications: experimental and theoretical investigations, *New Journal of Chemistry*, Volume 45, Issue 24, 2021, pp. 10761-10776.
7. Hamasha, Khozima; Mohaidat, Qassem I; Lataifeh, Mahdi; Bsoul, Ibrahim; Mahmood, Sami H; Structural and Magnetic Studies of Ga-doped Yttrium Iron Garnet, *Journal of Wuhan University of Technology-Mater. Sci. Ed.*, Volume 36, Number 1, 2021, pp. 13-21.
8. **Ibrahim Bsoul**, Suaad Assrhan, Sami H. Mahmood, Ni-Ti substituted strontium hexaferrites for high density magnetic recording, *Jordan Journal of Physics*, Volume 13, Number 4, 2020, pp. 263-277.
9. Alzoubi, Gassem M; Albiss, BA; Shatnawi, M; **Bsoul, I**; Alsmadi, AM; Salameh, B; Alna'washi, GA; Influence of High-Temperature Annealing on Structural and Magnetic Properties of Crystalline Cobalt Ferrite Nanoparticles in the Single-Domain Regime, *Journal of Superconductivity and Novel Magnetism*, Volume 33, Number 10, 2020, pp. 3179-3188.
10. Guetni, Inssaf; Belaiche, Mohammed; Ferdi, Chouaib Ahmani; Elansary, Moustapha; **Bsoul, Ibrahim**; New investigation of nanosized co-doped Gd-Sm anatase TiO_2 structural, magnetic, optical, and first-principles study, *Applied Physics A*, Volume 126, Number 9, 2020, pp. 1-16.



11. Al-Hunaiti, Afnan; Mohaidat, Qassem; **Bsoul, Ibrahim**; Mahmood, Sami; Taher, Deeb; Hussein, Tareq; Synthesis and Characterization of Novel Phyto-Mediated Catalyst, and Its Application for a Selective Oxidation of (VAL) into Vanillin under Visible Light, *Catalysts*, Volume 10, Number 8, 2020, pp. 839.
12. Alzoubi, Gassem M; Alsmadi, AM; Alna'washi, GA; Salameh, B; Shatnawi, M; Alnemrat, Sufian; Albiss, BA; **Bsoul, I**; Coexistence of superparamagnetism and spin-glass like behavior in zinc-substituted cobalt ferrite nanoparticles, *Applied Physics A*, Volume 126, Number 7, 2020, pp. 512.
13. Elansary, M; Belaiche, M; Ferdi, C Ahmani; Iffer, E; **Bsoul, I**; New nanosized Gd–Ho–Sm doped M-type strontium hexaferrite for water treatment application: experimental and theoretical investigations, *RSC Advances*, Volume 10, Number 42, 2020, pp. 25239-25259.
14. **Ibrahim Bsoul**, Khaled Hawamdeh, Sami H. Mahmood, Structural and Magnetic Properties of $\text{Er}_3\text{Fe}_{5-x}\text{Al}_x\text{O}_{12}$ Garnets, *Materials Research Foundations*, 83, 2020, pp. 21-44.
15. Ghassan Ali Alna'washi, A. M. Alsmadi, **I. Bsoul**, Gassem M. Alzoubi, B. Salameh, M. Shatnawi, F.M Al-Dweri; S. H. Mahmood, Magnetic study of M-type Co-Ti doped Strontium hexaferrite nanocrystalline particles, *Journal of Superconductivity and Novel Magnetism*, Volume 33, Number 5, 2020, pp. 1423-1432.
16. Mohammad K. Dmour, Eman S. Al-Hwaitat, Yazan Maswadeh, **Ibrahim Bsoul**, Sami H. Mahmood, Preparation and characterization of rare earth-zinc substituted X- type hexaferrites, *Journal of Alloys and Compounds*, Volume 836, Number 25, 2020, pp. 155396.
17. Eman S. Al-Hwaitat, Mohammad K. Dmour, **Ibrahim Bsoul**, Rola Al-Buqain, Sami H. Mahmood, A comparative study of $\text{Ba}_x\text{Sr}_{1-x}\text{Fe}_{12}\text{O}_{19}$ ferrite permanent magnets prepared by ball milling and sol–gel routes, *Journal of Physics D: Applied Physics*, Volume 53, Number 36, 2020, pp. 364001.
18. Mohammad K. Dmour, Eman S. Al-Hwaitat, **Ibrahim Bsoul**, Sami H. Mahmood, Structural and Magnetic Properties of $\text{Ba}_{1-x}\text{Re}_x\text{Co}_2\text{Zn}_x\text{Fe}_{16-x}\text{O}_{27}$ W-type Hexaferrite prepared by Ball Milling Method, *Material Science Research India*, Volume 17 (1), 2020, pp. 34-46.
19. Ghada A. Al-Garalleh, Sami H. Mahmood, **Ibrahim Bsoul**, Riza Loloee, Structural and magnetic properties of RE-Al substituted nanocrystalline hexaferrites ($\text{Sr}_{1-x}\text{RE}_x\text{Al}_2\text{Fe}_{10}\text{O}_{19}$), *Materials Research Express*, Volume 7, 2020, pp. 026103.
20. S.H. Mahmood, Q. Al Sheyab, **I. Bsoul**, Y. Maswadeh, Q.I. Mohaidat, A. Awadallah, Structural and magnetic properties of $(\text{Mg},\text{Co})_2\text{W}$ hexaferrites, *Jordan Journal of Physics*, Volume 13, Number 1, 2020, pp. 1-16.
21. Mohammad K. Dmour, Eman S. Al-Hwaitat, **Ibrahim Bsoul**, Sami H. Mahmood, Structural and Magnetic Properties of $\text{Ba}_{1-x}\text{Re}_x\text{Co}_2\text{Zn}_x\text{Fe}_{16-x}\text{O}_{27}$ W-type hexaferrites papered by Sol-gel auto-combustion, *Journal of Superconductivity and Novel Magnetism*, Volume 33, Number 2, 2020, pp. 473-482.
22. Al-Hwaitat, Eman S., Al –Hussein, M., **Bsoul, I.**, AL Buqain, R., Mahmood, Sami H., Synthesis, structural, and magnetic properties $\text{Ba}_3[\text{Zn}_x\text{Mg}_{1-x}]_2\text{Fe}_{24}\text{O}_{41}$ Z-type hexaferrites, *Acta Physica Polonica*, Volume 136, Number 3, 2019, pp. 548-554.
23. Hammad Younes, MD Mahfuzur Rahman, George NI, Amal Al Ghaferi, Rashid Abu Al rub, **Ibrahim Bsoul**, Investigation of Magnetic Properties of $\gamma\text{-Fe}_2\text{O}_3$ NP-Decorated Carbon Nanostructured Mats, *The Minerals, Metals & Materials Society*, Volume 71, Number 9, 2019, pp. 3142-3150.



24. Ghada A. Al-Garalleh, **Ibrahim Bsoul**, Yazan Maswadeh, Eman Al-Hwaitat, Sami H. Mahmood, Effects of synthesis route on the structural and magnetic properties of $\text{Sr}_{1-x}\text{RE}_x\text{Fe}_{12}\text{O}_{19}$ nanocrystalline hexaferrites, *Applied Physics A*, 125: 467, 2019, pp. 16.
25. Sami Mahmood, Haneen Badran, Eman Al-Hwaitat, **Ibrahim Bsoul**, Rola bqaen, Structural and magnetic properties of $\text{La}_{2/3}\text{D}_{1/3}\text{MnO}_3$ (D = Ca, Sr, Ba) manganites prepared by Ball milling, *Jordan Journal of Physics*, Volume 12, Number 2, 2019, pp. 141-152.
26. **Ibrahim Bsoul**, Rasheed Olayaan, Mahdi Lataifeh, Qassem I. Mohaidat, Sami H. Mahmood, Structural and magnetic properties of $\text{Er}_3\text{Fe}_{5-x}\text{Ga}_x\text{O}_{12}$ garnets, *Materials Research Express*, Volume 6, Number 7, 2019, pp. 076114.
27. E.S. Al-Hwaitat, S.H. Mahmood, M. Al-Hussein, **I. Bsoul**, Structural and magnetic properties of $\text{Ba}_3[\text{Cu}_{0.8-x}\text{Zn}_x\text{Mn}_{0.2}]\text{Fe}_{24}\text{O}_{41}$ Z-type hexaferrites, *Advances in Materials Science and Engineering*, vol. 2018, Article ID 6152020, 11 pages, 2018. <https://doi.org/10.1155/2018/6152020>.
28. Mahdi Lataifeh, Qassem I Mohaidat1, Sami H Mahmood, **Ibrahim Bsoul**, Mufeed Awawdeh, Ibrahim Abu-Aljarayesh, and Mu'ath Altheeba, Structural, Mossbauer spectroscopy, magnetic properties, and thermal measurements of $\text{Y}_{3-x}\text{Dy}_x\text{Fe}_5\text{O}_{12}$, *Chinese Physics B*, Volume 27, No. 10, 2018, pp. 107501 (1-7).
29. Eman Al-Hwaitat, Mahmoud Al-Hussein, Sami H. Mahmood, **Ibrahim Bsoul**, Fabrication and characterization of $\text{Ba}_3\text{Zn}_2\text{Fe}_{24}\text{O}_{41}$ (Zn_2Z) hexaferrites films on silicon substrates, *Journal of Alloys and Compounds*, Volume 763, 2018, pp. 71-77.
30. Sami H. Mahmood, Qusai Al-Shiab, **Ibrahim Bsoul**, Osama Mohsen, Ahmad Awadallah, Structural and magnetic properties of Ga-substituted $\text{Co}_2\text{-W}$ hexaferrites, *Current Applied Physics*, Volume 18, 2018, pp. 590.
31. Qassem I. Mohaidat, Mahdi Lataifeh, Khozima Hamasha, Sami H. Mahmood, **Ibrahim Bsoul**, Mufeed Awawdeh, The Structural and the Magnetic Properties of Aluminum Substituted Yttrium Iron Garnet, *Materials Research*, 21, 2018, pp. 1-7.
32. A-F. Lehlooh, E.A. Al Rasheed, M.R. Said, A.Y. Hammoudeh, **I. Bsoul**, S.H. Mahmood Mössbauer Spectroscopy $\text{BaSrNi}_x\text{Co}_{2-x}\text{Fe}_{12}\text{O}_{22}$ Hexaferrite Prepared by Sol-Gel Method, *Hyperfine Interactions*, 239, 2018, pp. 23.
33. Sami H. Mahmood, **Ibrahim Bsoul**, Tuning the Magnetic Properties of M-type Hexaferrites, *Materials Research Foundations*, chapter 2, 2018, pp. 49-100.
34. Sami H. Mahmood, Ahmad M. Awadallah, **Ibrahim Bsoul**, Yazan Maswadeh, Structural and magnetic properties of vanadium substituted SrM and europium substituted BaM hexaferrites, *Materials Research Foundations*, chapter 4, 2018, pp. 113-132.
35. Eman S. Alhwaitat, Sami H. Mahmood, Mahmoud Al-Hussein, Osama E. Mohsen, Yazan Maswadeh, **Ibrahim Bsoul**, Ayman Hammoudeh, Effects of synthesis route on the structural and magnetic properties of $\text{Ba}_3\text{Zn}_2\text{Fe}_{24}\text{O}_{41}$ (Zn_2Z) nanocrystalline hexaferrites, *Ceramics International*, Volume 44, 2018, pp. 779.
36. Sami H. Mahmood, Abdelkarim Ghanem, **Ibrahim Bsoul**, Ahmad Awadallah, Yazan Maswadeh, Structural and magnetic properties of $\text{BaFe}_{12-2x}\text{Cu}_x\text{Mn}_x\text{O}_{19}$ hexaferrites, *Materials Research Express*, Volume 4, 2017, pp. 036105.
37. Qassem I. Mohaidat, Mahdi Lataifeh, Sami H. Mahmood, **Ibrahim Bsoul**, Mufeed Awawdeh, Structural, Mössbauer Effect, Magnetic, and Thermal Properties of Gadolinium Erbium Iron Garnet System $\text{Gd}_{3-x}\text{Er}_x\text{Fe}_5\text{O}_{12}$, *Journal of Superconductivity and Novel Magnetism*, Volume 30, 2017, pp. 2135.



38. M. Shatnawi, A.M. Alsmadi, **I. Bsoul**, B. Salameh, M. Mathai, G. Alnawashi, Gasseem M. Alzoubi, F. Al-Dweri, M.S. Bawa'aneh, Influence of Mn doping on the magnetic and optical properties of ZnO nanocrystalline particles, *Results in Physics*, Volume 6, 2016, pp. 1064.
39. Sami H. Mahmood, Muna D. Zaqsaw, Osama E. Mohsen, Ahmad Awadallah, **Ibrahim Bsoul**, Mufeed Awawdeh, Qassem I. Mohaidat, Modification of the magnetic properties of Co₂Y hexaferrites by divalent and trivalent metal substitutions, *Solid State Phenomena*, Volume 241, 2016, pp. 93.
40. I. Odeh, H.M. El Ghanem, S.H. Mahmood, S. Azzam, **I. Bsoul**, A-F. Lehlooh, Dielectric and magnetic properties of Zn-substituted Co₂Y barium hexaferrite prepared by sol-gel auto combustion method, *Physica B*, Volume 494, 2016, pp. 33.
41. Ahmad Awadallah, Sami H. Mahmood, Yazan Maswadeha, **Ibrahim Bsoul**, Mufeed Awawdeh, Qassem I. Mohaidat, Hassan Juwhari, Structural, magnetic, and Mössbauer spectroscopy of Cu substituted M-type hexaferrites, *Materials Research Bulletin*, Volume 74, 2016, pp. 192.
42. M. Shatnawi, A. M. Alsmadi, **I. Bsoul**, B. Salameh, G. Alnawashi, F. Al-Dweree, F. El Alakkad, Magnetic and Optical properties of Co-doped ZnO nanocrystalline particles, *Journal of Alloys and Compounds*, Volume 655, 2016, pp. 244.
43. Almuatasim Alomari, Hasan M. El Ghanem, Abdel-Fatah Lehlooh, Isam M. Arafa, **Ibrahim Bsoul**, Ashok Batra, Mössbauer, VSM and X-ray Diffraction Study of Fe₃O₄ (NP's)/PVOH for Biosensors Applications, *Sensors & Transducers*, Volume 192(9), 2015, pp. 53.
44. Ahmad Awadallah, Sami H. Mahmood, Yazan Maswadeh, **Ibrahim Bsoul**, Aynour Aloqaily, Structural and magnetic properties of Vanadium Doped M-Type Barium Hexaferrite (BaFe_{12-x}V_xO₁₉), *IOP Conf. Series: Materials Science and Engineering*, 92; 012006 (2015) pp.21.
45. Sami H. Mahmood, Ahmad Awadallah, Yazan Maswadeh, **Ibrahim Bsoul**, Structural and magnetic properties of Cu-V substituted M-type barium hexaferrites, *IOP Conf. Series: Materials Science and Engineering*, 92; 012008 (2015) pp.24.
46. A.M. Alsmadi, **I. Bsoul**, S.H. Mahmood, G. Alnawashi, F.M. Al-Dweri, Y. Maswadeh, U. Welp, Magnetic study of M-type Ru-Ti doped strontium hexaferrite nanocrystalline particles, *Journal of Alloys and Compounds*, Volume 648, 2015, pp. 419.
47. **I. Bsoul**, Effect of mechanical milling on the magnetic properties of SrFe₁₂O₁₉, *Material Science Research India*, Volume 12(1), 2015, pp. 8.
48. **I. Bsoul**, W. I. Da'as, Magnetic properties of SrFe_{12-x}Al_xO₁₉, *Material Science Research India*, Volume 12(1), 2015, pp. 28.
49. Sami H. Mahmood, Aynour N. Aloqaily, Yazan Maswadeh, Ahmad Awadallah, **Ibrahim Bsoul**, Mufeed Awawdeh, Hassan Juwhari, Effects of Heat Treatment on the Phase Evolution, Structural, and Magnetic properties of Mo-Zn doped M-type Hexaferrites, *Solid State Phenomena*, Volume 323, 2015, pp. 65.
50. F. Ben Jemaa, S. Mahmood, M. Ellouze, Prof. Dr. E.K. Hlil, F. Halouani, **I. Bsoul**, M. Awawdeh, Structural, magnetic and magnetocaloric properties of La_{0.67}Ba_{0.22}Sr_{0.11}Mn_{1-x}Fe_xO₃ nanopowders, *Solid State Sciences*, Volume 37, 2014, pp. 121.



51. S.H. Mahmood, A. N. Aloqaily, Y. Maswadeh, A. Awadallah, **I. Bsoul**, H. Juwhari, Structural and Magnetic Properties of Mo-Zn Substituted ($\text{BaFe}_{12-4x}\text{Mo}_x\text{Zn}_{3x}\text{O}_{19}$) M-type Hexaferrites, *Material Science Research India*, Volume 11(1), 2014, pp. 9.
52. Sami H. Mahmood, Ghada H. Dushaq, **I. Bsoul**, Mufeed Awawdeh, Hassan K. Juwhari, Bashar I. Lahlouh, Murad A. AlDamen, Magnetic Properties and Hyperfine Interactions in M-Type $\text{BaFe}_{12-2x}\text{Mo}_x\text{Zn}_x\text{O}_{19}$ Hexaferrites, *Journal of Applied Mathematics and Physics*, Volume 2, 2014, pp. 77.
53. A. M. Alsmadi, **I. Bsoul**, S. H. Mahmood, G. Alnawashi, K. Prokeš, K. Siemensmeyer, B. Klemke, and H. Nakotte, Magnetic study of M-type doped barium hexaferrite nanocrystalline particles, *Journal of Applied Physics*, Volume 114, 2013, pp. 243910.
54. M. Awawdeh, **I. Bsoul**, S. H. Mahmood, Magnetic properties and Mossbauer spectroscopy on Ga, Al, and Cr substituted hexaferrites, *Journal of Alloys and Compounds*, Volume 585, 2014, pp. 465.
55. S. H. Mahmood, G. H. Dushaq, **I. Bsoul**, M. Awawdeh, H. K. Juwhari, B. Lahlouh M. A. AlDamen, Molybdenum concentration and valence state effects On the magnetic anisotropy and hyperfine interactions in M-type $\text{BaFe}_{12-2x}\text{Mo}_x\text{Zn}_x\text{O}_{19}$ hexaferrites, *Acta Metallurgica Sinica (English Letters)*, Volume 26, No. 5, 2013, pp. 509.
56. **I. Bsoul**, S. H. Mahmood, Abdel-Fatah Lehlooh, Ahmed Al-Jamel, Structural and magnetic properties of $\text{SrFe}_{12-2x}\text{Ti}_x\text{Ru}_x\text{O}_{19}$, *Journal of Alloys and Compounds*, Volume 551, 2013, pp. 490.
57. S. H. Mahmood, **I. Bsoul**, Hopkinson peak and superparamagnetic effects in $\text{BaFe}_{12-x}\text{Ga}_x\text{O}_{19}$ nanoparticles, *EPJ web of conferences*, Volume 29, 2012, pp. 39.
58. **I. Bsoul**, M. Al Zyoud, Preparation and Investigation of the Magnetic Properties of Barium Hexaferrite Doped with Antimony, *Abhath Al-Yarmouk*, Volume 20, Number 1, 2011, pp. 77-89.
59. **I. Bsoul**, S. H. Mahmood, Abdel-Fatah Lehlooh, Structural and magnetic properties of $\text{BaFe}_{12-2x}\text{Ti}_x\text{Ru}_x\text{O}_{19}$, *Journal of Alloys and Compounds*, Volume 498, 2010, pp. 157-161.
60. **I. Bsoul**, S. H. Mahmood, Magnetic and Structural Properties of $\text{BaFe}_{12-x}\text{Ga}_x\text{O}_{19}$ Nanoparticles, *Journal of Alloys and Compounds*, Volume 489, 2010, pp. 110-114.
61. **I. Bsoul**, S. H. Mahmood, Structural and Magnetic Properties of $\text{BaFe}_{12-x}\text{Al}_x\text{O}_{19}$ Prepared by Milling and Annealing, *Jordan Journal of Physics*, Volume 2, Number 3, 2009, pp. 171-179.
62. **I. Bsoul**, Preparation and Investigation of $\text{BaFe}_{12-x}\text{Cr}_x\text{O}_{19}$ Obtained by Ball Milling, *Abhath Al-Yarmouk*, Volume 18, Number 2, 2009, pp. 127-138.
63. **I. Bsoul**, Preparation of Nanocrystalline $\text{BaFe}_{12-2x}\text{Co}_x\text{Ti}_x\text{O}_{19}$ by Ball Milling Method and their Magnetic Properties, *Jordan Journal of Physics*, Volume 2, Number 2, 2009, pp. 95-102.
64. **I. Bsoul**, A. Rousan, A. L. Al-Momnee and A. Hudeish, Interaction fields in doped Barium ferrite particle powder systems, *Al-Manarah for Research and Studies*, Volume 14, Number 3, 2008, pp. 33-45.



65. **I. Bsoul**, M. Saleh, Magnetic relaxation and interaction effects in diluted with glucose $\text{BaFe}_{10.48}\text{Co}_{0.76}\text{Ti}_{0.76}\text{O}_{19}$ powder systems, *Al-Manarah for Research and Studies*, Volume 14, Number 3, 2008, pp. 47-57.
66. **I. Bsoul**, Influence of protons doping on physical properties of $\text{Li}_2\text{Ge}_7\text{O}_{15}$ crystals, *Al-Manarah for Research and Studies*, Volume 13, Number 6, 2007, pp. 63-72.
67. M. El-Hilo, **I. Bsoul**, Interaction effects on the coercivity and fluctuation field in granular powder magnetic systems, *Physica B* 389, Issue 2, 2007, pp 311–316.
68. M. El-Hilo, **I. Bsoul**, A. Rousan and A. Hudeish, Interactions effects in granular powder systems, *Journal of Magnetism and Magnetic Materials*, Volumes 272-276, 2004, pp. 327-329.
69. A. Yu. Kudzin, M.D. Volnianskii, M.P. Trubitsyn, **I. Bsoul**, Ising-type behavior of critical properties in weak ferroelectric $\text{Li}_2\text{Ge}_7\text{O}_{15}$, *Condensed Matter Physics*, Volume 2, Number 1(17), 1999, pp. 149-154.
70. A. Yu. Kudzin, M.D. Volnianskii, **I. Bsoul**, Ferroelectric properties of lithium heptagermanate crystal $\text{Li}_2\text{Ge}_7\text{O}_{15}$ (LGO) in the vicinity of phase transition, *Ferroelectrics*, Volume 215, 1998, pp. 23–30.
71. A. Yu. Kudzin, M. D. Volnyanski, M. P. Trubitsyn, **I. Bsoul**, Dielectric relaxation in the weak ferroelectric $\text{Li}_2\text{Ge}_7\text{O}_{15}$ near the ferroelectric phase transition, *Physics of the Solid State*, Volume 40, Number 12, 1998, pp. 1994-1997.
72. A. Yu. Kudzin, M. D. Volnyanski, M. P. Trubitsyn, and **I. Bsoul**, Anomalous behavior of dielectric permittivity of $\text{Li}_2\text{Ge}_7\text{O}_{15}$ crystals at a phase transition, *Physics of the Solid State*, Volume 40, Number 9, 1998, pp. 1544-1545.
73. M. P. Trubitsyn, M. D. Volnyanski, **I. Bsoul**, EPR of the ferroelectric phase transition in $\text{Li}_2\text{Ge}_7\text{O}_{15}:\text{Cr}^{3+}$ crystals, *Physics of the Solid State*, Volume 40, Number 6, 1998, pp. 1006-1008.
74. A. Yu. Kudzin, M. D. Volnyanski, **I. Bsoul**, Specific features of the phase transition in the weak ferroelectric $\text{Li}_2\text{Ge}_7\text{O}_{15}$, *Physics of the Solid State*, Volume 39, Number 10, 1997, pp. 1645-1646.

SUPERVISION OF GRADUATE RESEARCH

1. Study of the Interaction Field of Doped Barium Ferrite $\text{BaFe}_{12-2x}\text{Co}_x\text{Ti}_x\text{O}_{19}$.
2. Magnetic Characteristics of Doped Barium Ferrite System $\text{BaFe}_{12-2x}\text{Co}_x\text{Ti}_x\text{O}_{19}$.
3. Study of the Fluctuation Fields of Doped Barium Ferrite Powder Systems.
4. Influence of Heat Treatment on the Magnetic Properties in Barium Ferrite Powder Systems.



5. Study of the Activation Volumes of Doped Barium Ferrite Powder Systems.
6. Dielectric and Magnetic Properties of BaTiO_3 - $\text{BaFe}_{12}\text{O}_{19}$ solid solution.
7. Preparation and Study of the Magnetic Properties of Doped with Aluminum Barium Ferrite Systems.
8. Preparation and Study of the Magnetic Properties of Doped Barium Ferrite.
9. Preparation and Study of the Magnetic Properties of Doped with Chromium Barium Ferrite.
10. Preparation and Investigation of the Magnetic Properties of Barium Ferrite Doped with Antimony.
11. Preparation and Investigation of the Magnetic Properties of Strontium Ferrite Doped with Aluminum.
12. Preparation and Investigation of the Magnetic Properties of Strontium Ferrite Doped with cobalt and titanium.
13. Fabrication and Investigation of $\text{PbFe}_{12-x}\text{Al}_x\text{O}_{19}$ Magnetic Compound.
14. Fabrication and Investigation of $\text{PbFe}_{12-x}\text{Cr}_x\text{O}_{19}$ Magnetic Compound.
15. Fabrication and Investigation of $\text{PbFe}_{12-2x}\text{Co}_x\text{Ti}_x\text{O}_{19}$ Magnetic Compound.
16. Preparation and Investigation of Structural and Magnetic Properties of Doped Strontium Ferrite.
17. Fabrication and Investigation of $\text{SrFe}_{12-x}\text{Cr}_x\text{O}_{19}$ Magnetic Compound.
18. Fabrication and Investigation of $\text{SrFe}_{12-x}\text{Sb}_x\text{O}_{19}$ Magnetic compound.
19. Investigation of the structural and magnetic properties of erbium iron garnet compound.
20. Structural and Magnetic Properties of $\text{Er}_3\text{Fe}_{5-x}\text{Ga}_x\text{O}_{12}$ Compound.
21. Structural and Magnetic Properties of $\text{Dy}_3\text{Fe}_{5-x}\text{Al}_x\text{O}_{12}$ Compound.
22. Structural and Magnetic Properties of $\text{Yb}_3\text{Fe}_{5-x}\text{Al}_x\text{O}_{12}$ Compound.

GRANTS

1. Deanship of Academic Research at Al al-Bayt University:
Grant No. 213/2004/2005 (5130 JD).
2. Scientific Research Fund at Ministry of Higher Education and Scientific Research:
Grant No. 1/21/2009 (45000 JD).