Research Lab Sheet

Lab Name	M.M. Ibrahim for Nanoscience and Nanotechnology
Academic Year	2021/2022

Basic Information	
Department	Physics department
Location	Faculty of Science, Building No. B
Total area (m^2)	48

Lab Members				
No. of Prof.	No. of Ass. Prof.	No. of Lect.	No. of Ass. Lect. & Demonst.	No. of technicians
1	1	0	2	0

Staff members					
#	**Name**	**Scientific degree**	**e-mail**	**Specializations**	**C.V**
1	Prof. Dr. Eslam M. M. Ibrahim	Prof.	e.ibrahim@science.sohag.edu.eg	Nanoscience	Link of homepage
2	Dr. Ahmed M. Abdelhakeem	Dr.	ahmedhakeem75@yahoo.com	Nanoscience	
3					
4					
Ass. Lecturers & Demonstrators					
#	**Name**	**Scientific degree**	**e-mail**	**Specializations**	
1	Asmaa Hosny	MSc	asmaa_hosny@rocketmail.com	Bionanotechnology	
2	Shorouq Salah	BCS	shrouk2017072@gmail.com	Nanoscience	
3					

Theses produced by the Lab			
M Sc Thesis			
#	**Degree**	**Title**	**Approval date**
1	MSc	Synthesis and Characterization Hybrid TiNi/Graphene Nanocomposite for supercapacitors	Not yet
2	MSc	Syntheses, characterization and study of physical properties of some nanostructural metal oxides	Not yet
3	MSc	Study of the transport properties of some nanosized thermoelectric materials	Not yet
4	MSc	Structural ptical and magnetic properties of Ni doped ZnO nanoparticles	Not yet
5	MSc	Chalcogenide based nanostructures for optoelectronics and thermoelectric power applications	Not yet
6	MSc	Study on some physical properties of chalcogenide based alloys in nanosized scale	2018
7	MSc	Synthesis and characterization of some metal oxides in nano-sized scale	2018
8	MSc	Synthesis and characterization of some nanoferrites	2017
9	MSc	Synthesis and Characterization of ZnO nanoparticles prepared by sonochemical method	2016
10	MSc	Structural and electrical properties of $La_{1-x}Sr_xMnO_y$ compounds	2012
11	MSc	Studies on some physical properties of Bismuth selenide compounds doped with antimony element	2011
12	MSc	Study of some transport properties of Manganites	2007
13	MSc	Studies on some physical properties of PbSe compound doped with Samarium element	2006

Ph.D. Thesis

1	Ph.D.	Improving performance of adsorption water desalination system powered by low grade heat source temperature	Not yet
2	Ph.D.	Synthesis and characterization of nanostructures for enhancing the efficiency of silicon solar cells	Not yet
3	Ph.D.	Utilization of desalination system to enhancement the performance of solar PV under hot weather conditions	Not yet
4	Ph.D.	Biosynthesis of metal and metal oxide nanoparticles by algae and cyanobacteria for potential applications in biology and physics	Not yet
5	Ph.D.	Synthesis and physical characterizations of nanocrystalline dilute magnetic semiconductor thin films for spintronic applications	Not yet
6	Ph.D.	Study of physical properties of nano-ferrites doped with transition metals	Not yet
7	Ph.D.	Synthesis and characterization of Zn-Ni-O hetero nanostructures.	Not yet
8	Ph.D.	Physical Studies on some Schiff base Complexes and metal oxides in nanometric Scale	2017
9	Ph.D.	Growth and characterization of ZnO based nano-sized materials	2014
10	Ph.D.	Spin valves based on manganites for low magnetic field applications	2014

Articles produced by the Lab		
#	Title	Journal information
	Opto-electro-structural properties of Ge-doped $Sb_{65}Se_{35}$ alloys, S. A. Saleh,	**J. Taibah Uni. Sci., (2022) 10.1080/16583655.2022.2048518.**
	Study of Optical, Electrical and Photocatalysis Properties of SrMnO 3 Synthesized by Solid-State Reaction. Mahrous R. Ahmed, H. M. Ali, M. F. Hasaneen, Amira Etman1 and A. M. Abdel hakeem,	Inf. Sci. Lett. 11, No. 2, 457- 463 (2022).
	Investigation of the opto-magnetic properties of Co doped ZnO nanoparticles and thin films for spintronics, *E. M. M. Ibrahim*, A. Z. Mahmoud, L. Galal, Y. El Sayed, E. R. Shaabang,	Journal of Ovonic Research, 17 (2021) 519 – 532.
	Mechanical and thermoelectric properties of FeVSb-based half-Heusler alloys, A. El-Khouly, A.M. Adam , ***E.M.M. Ibrahim*** , Ayman Nafady, D. Karpenkovf, A. Novitskii, A. Voronin, V. Khovaylo, E.M. Elsehly,	Journal of Alloys and Compounds 886 (2021) 161308
	Modeling of thermal studies on melt quenched $Ge_{18}Bi_4Se_{78}$ chalcogenide. **A. M. Abdel Hakeem**, M. M. Abd El-Raheem, M. M. Wakkad , H. F. Mohamed, H. M Ali, S. K. Mohamed, A. K. Diab,	Physica Scripta 96 (2021) 125727.
	Mn-doped molybdenum trioxide for photocatalysis and solar cell applications. Y.A. Taya, H.M. Ali, E. Kh. Shokr, M.M. Abd El-Raheem, M.F. Hasaneen, Sh.A. Elkot, A. M. Hassan, A.**M. Abdel Hakeem**,	Optical Materials 121(2021)111614.
	Study the effect of type of substrates on the microstructure and optical properties of CdTe Thin Films., **A. M. Abdel Hakeem**, H. M. Ali, M. M. Abd El-Raheem and M. F. Hasaneen,	Optik–International Journal for Light and Electron Optics. 225(2021) 165390.
	Correlation between Raman spectra of $Sn_{1-x}Fe_xO_2$ nanoparticles and their electrical and magnetic properties, A.M. Abdel Hakeem, S.A. Saleh, E.M.M. Ibrahim,	Materials Science and Engineering B 265 (2021) 115025
	Dielectric, magnetic and structural properties of Co-doped hexaferrite synthesized by microwave digestion system, A.M. Abdel Hakeem, ***E.M.M. Ibrahim,*** H.M. Ali, E.Kh. Shokr,	Journal of Alloys and Compounds 872 (2021) 159669.

	Adel Hamazaoui, Mahrous R. Ahmed,	
	Effects of spark plasma sintering on enhancing the thermoelectric performance of Hf–Ti doped VFeSb half-Heusler alloys, A. El-Khouly, A.M. Adam, A. Novitskii, ***E.M.M. Ibrahim,*** I. Serhiienko, Ayman Nafady, M.K. Kutzhanov, D. Karpenkov, A. Voronin, V. Khovaylo,	Journal of Physics and Chemistry of Solids 150 (2021) 109848.
	Incorporation of polyaniline on graphene-related materials for wearable thermoelectric applications, Anshu Panbude, Suhasini Sathiyamoorthy, R. Kumar, H. Shankar, S. Paulraj, V. Kathirvel, A.M. Adam, ***E.M.M. Ibrahim,*** K. Jayabal, Pandiyarasan Veluswamy,	Materials Letters 304 (2021) 130576
	Influence of doping with Sb^{3+}, In^{3+}, and Bi^{3+} ions on the structural, optical and dielectric properties of ZnS nanoparticles synthesized by ultrasonication process, A.A. Othman, M.A. Osman, Manar A. Ali, ***E.M.M. Ibrahim***,	Physica B 614 (2021) 413041
	Influence of transition metals dopant type on the structural, optical, magnetic, and dielectric properties of ZnS nanoparticles prepared by ultrasonication process, A.A. Othman, M.A. Osman, Manar A. Ali, ***E.M.M. Ibrahim***,	Materials Science and Engineering B 270 (2021) 115195.
	Thermoelectric power properties of Ge doped PbTe alloys, A.M. Adam, ***E.M.M. Ibrahim***, Anshu Panbude, K. Jayabal, Pandiyarasan Veluswamy, A.K. Diab,	Journal of Alloys and Compounds 872 (2021) 159630.
	Thermoelectric properties of Lenaite: A first principles study, G. Prakash, S. Paulraj, A.M. Adam, ***E.M.M. Ibrahim***, Pandiyarasan Veluswamy, V. Kathirvel,	Materials Letters 300 (2021) 130146
	Effect of surfactant concentration on the morphology and thermoelectric power factor of PbTe nanostructures prepared by a hydrothermal route, *E.M.M. Ibrahim*, G.A. Ahmed, Vyacheslav Khavrus, N.M.A Hadia, S.H. Mohamed, Silke Hampel, A.M. Adam,	Physica E: Low-dimensional Systems and Nanostructures 125 (2021) 114396

	Tailoring the thermoelectric properties of Pb1-xSmxTe nanostructures via Sm doping, ***E.M.M. Ibrahim***, G.A. Ahmed, Vyacheslav Khavrus, N.M. Hadia, S.H. Mohamed, Silke Hampel, A.M. Adam,	Intermetallics 125 (2020) 106923
	Structure and optical properties of thermally evaporated Te doped ZnSe thin films. M. F. Hasaneen, H. M. Ali, M. M. Abd El-Raheem and **A. M. Abdel Hakeem**,	Materials science &engineering B 262 (2020) 114704.
	Tuning of the electronic and phononic properties of NbFeSb half-Heusler compound by Sn/Hf co-doping, M.A.A. Mohamed, ***E.M.M. Ibrahim***, B. Büchner, S. Hampel, G. Schierning, K. Nielsch, R. He,	Acta Materialia 196 (2020) 669–676.
	Structural and frequency-dependent dielectric properties of $(SnO_2)_{1-x}(Fe_2O_3)_x$, S.A. Saleh & I.A. Abdel-Latif & A.M. Abdel Hakeem, ***E.M.M. Ibrahim***,	J Nanopart Res 22 (2020) 44
	Anomalous magnetic behaviour of Bi based tetradymites, Abd El-Moez A Mohamed, ***E.M.M. Ibrahim***, AM Adam,	Journal of Magnetism and Magnetic Materials 511 (2020) 166982.
	Enhanced thermoelectric figure of merit in Bi-containing Sb_2Te_3 bulk crystalline alloys, M. Adam, A. El-Khouly, A. P. Novitskii, ***E.M.M. Ibrahim***, A. V. Kalugina, D. S. Pankratova, A. I. Taranova, A. A. Sakr, A. Trukhanov, M. M. Salem, V. Khovaylo,	Journal of Physics and Chemistry of Solids, 138 (2020) 109262.
	Influence of nickel doping on the energy band gap, luminescence, and magnetic order of spray deposited nanostructured ZnO thin films, H. Ali, A.M. Alsmadi, B. Salameh, M. Mathai, M. Shatnawi, N.M.A. Hadia, ***E.M.M. Ibrahim***,	Journal of Alloys and Compounds 816 (2020) 152538
	Sonochemically synthesized Ni-doped ZnS nanoparticles: structural, optical, and photocatalytic properties, A. A. Othman, M. A. Osman, Manar A. Ali, W. S. Mohamed, ***E. M. M. Ibrahim***,	Journal of Materials Science: Materials in Electronics (2020) 31:1752–1767.
	Enhanced magnetic and DC electrical properties of Sm-doped $Bi_2Fe_4O_9$ nanoplates synthesized by a sol-gel method, ***E.M.M.***	NANO, 15, 2 (2020) 2050020

	Ibrahim, G. Farghal, Mai M. Khalaf, Hany M. Abd El-Lateef,	
	Optical, Electrical, and Thermoelectric Properties of Hydrothermally Synthesized Bi_2Te_3 Nanoflakes, M. A.A. Mohamed, H. M. Ali, ***E.M.M. Ibrahim***, M. M. Wakkad,	Phys. Status Solidi A 216 (2019) 1800958
	Optical and transport properties of few quintuple-layers of $Bi_{2-x}Sb_xSe_3$ nanoflakes synthesized by hydrothermal method, ***E.M.M. Ibrahim***, M.A.A. Mohamed, H.M. Ali, Vyacheslav O. Khavrus, Silke Hampel, M.M. Wakkad,	Journal of Alloys and Compounds 804 (2019) 272-280
	Study of Microstructural, Electrical and Dielectric Properties of $La_{0.9}Pb_{0.1}MnO_3$ and $La_{0.8}Y_{0.1}Pb_{0.1}MnO_3$ Ceramics, S. A. Saleh,	**Scientific Review, 5 (2019) 33-44.**
	Magnetic Sm-BFO and Ce-BFO nanoflakes as protective coating layers for C-steel in acidic chloride environments, Mai M. Khalaf, Hany M. Abd El-Lateef, G. Farghal, ***E.M.M. Ibrahim***,	Measurement, 132 (2019) 99-108.
	Correlation of structural and optical properties in as-prepared and annealed Bi_2Se_3 thin films, A.M. Adam, E. Lilov, ***E.M.M. Ibrahim***, P. Petkov, L.V. Panina, M.A. Darwish,	Journal of Materials Processing Tech. 264 (2019) 76–83
	The synthesis of CuO and NiO nanoparticles by facile thermal decomposition of metal-Schiff base complexes and an examination of their electric, thermoelectric and magnetic Properties, ***E.M.M. Ibrahim***, Laila H. Abdel-RahmanAhmed, M. Abu-Dief, A. Elshafaie, Samar Kamel Hamdan, A.M.Ahmed,	Materials Research Bulletin, 107 (2018) 492-497.
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	Magnetocaloric Effect, Electric, and Dielectric Properties of $Nd_{0.6}Sr_{0.4}Mn_xCo_{1-x}O_3$ Composites, I. A. Abdel-Latif, A. M. Ahmed, H. F. Mohamed, S. A. Saleh, J. A. Paixão, Kh. A Ziq, M. Kh. Hamad, E. G. Al-Nahari, M. Ghozza, S. Allam,	**J. Magnetism and Magnetic Materials, 457 (2018) 126-134.**

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	The electric and thermoelectric properties of Cu(II)-Schiff base nano-complexes, ***E.M.M. Ibrahim***, Laila H Abdel-Rahman, Ahmed M Abu-Dief, A. Elshafaie, Samar Kamel Hamdan, A. M. Ahmed**,**	Phys. Scr. 93 (2018) 055801.
	Effect of the synthesis conditions on the structural, morphological and optical properties of $Bi_2Te_{2.7}Se_{0.3}$ nanoparticles, H. M. Ali, ***E.M.M. Ibrahim***, M. M. Wakkad, M.A.A. Mohamed,	Optik 158 (2018) 199–203
	Electric, thermoelectric and magnetic characterization of γ-Fe_2O_3 and Co_3O_4 nanoparticles synthesized by facile thermal decomposition of metal-Schiff base complexes, ***E.M.M. Ibrahim***, Laila H. Abdel-Rahman, Ahmed M. Abu-Dief, A. Elshafaie, Samar Kamel Hamdan, A.M. Ahmed,	Materials Research Bulletin 99 (2018) 103–108
	Sonochemical synthesis, structural inspection and semiconductor behavior of three new nano sized Cu(II), Co(II) and Ni(II) chelates based on tri-dentate NOO imine ligand as precursors for preparing of metal oxides, Laila H. Abdel Rahman, Ahmed M. Abu-Dief**,** Rafat M. El-Khatib, Shimaa Mahdy Abdel-Fatah, A. M. Adam, ***E.M.M. Ibrahim***,	Applied Organometallic Chemistry, 32(2018) 4174.
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	Magnetic and DC electric properties of sol–gel-synthesized Ce-doped $BiFeO_3$ nanoflakes, ***E. M. M. Ibrahim***, G. Farghal, Mai M. Khalaf, Hany M. Abd El-Lateef,	Appl. Phys. A 123 (2017) 533
	Mn-doped ZnO nanocrystals synthesized by sonochemical method: Structural, photoluminescence, and magnetic properties, A.A. Othman, M.A. Osman, ***E.M.M. Ibrahim***, Manar A. Ali, A.G. Abd-Elrahim,	Materials Science and Engineering B 219 (2017) 1–9.

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	Effect of Calcination Temperature on Magnetic Properties of BiFeO3 Nanoparticles Prepared By Sol-Gel Method, ***E. M. M. Ibrahim*** , G. Farghal, Mai M. Khalaf , Hany M. Abd El-Lateef,	J. Nano. Adv. Mat. 5, No. 1, 33-39 (2017)
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	Magnetic Nanoparticles for Cancer Therapy: Facile Synthesis Techniques and Desired Properties, ***E.M.M. Ibrahim***, G. Farghal, M. Mostafa, H. Abdelateef, S. Hampel, V. Khavrus, C. Täschner, A. Leonhardt, B. Büchner**,**	International Conference on Chemical Science & Applications, ICCSA 2016, 6-9 Aug. 2016, Alexandria, Egypt**.**
	Influence of Cu doping on structural, morphological, photoluminescence, and electrical properties of ZnO nanostructures synthesized by ice-bath assisted sonochemical method, A.A. Othman, Manar A. Ali, ***E.M.M. Ibrahim,*** M.A. Osman,	Journal of Alloys and Compounds 683 (2016) 399-411
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	Ahmed M. Abdel Hakeem, ***Eslam M.M. Ibrahim***,	
	One step syntheses of S doped ZnO nanowires for photocatalysis applications Madeha Ahmed Awad, ***Eslam Mohamed Mohamed Ibrahim***, and Ahmed Mohamed Ahmed,	The European Physical Journal Applied Physics 72 (2015), 30303
	Tuning the morphology of ZnO nanostructure by In doping and the associated variation in electrical and optical properties, M. A. Awad, A. M. Ahmed, V. O. Khavrus, ***E.M.M. Ibrahim***,	Ceramics International, 41 (2015) 10116-10124
	The effect of temperature and oxygen flow rate on the morphology of ZnO nanostructures, M. A. Awad, A. M. Ahmed, ***E.M.M. Ibrahim***,	Int. J. New. Hor. Phys., **2** (2015) 59-61.
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	Synthesis and thermal stability of ZnO nanowires, M. A. Awad, ***E.M.M. Ibrahim,*** A. M. Ahmed,	Journal of Thermal Analysis and Calorimetry (2014) 117: 635–642
	Synthesis, photoluminescence and optical constants evaluations of ultralong CdO nanowires prepared by vapor transport method. S. H. Mohamed, N. M. A. Hadia, A. K. Diab and **A. M. Abdel Hakeem**.	Journal of Alloys and Compounds 609 (2014) 68–72.
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	Preparation of degenerate n-type $Sb_{65}Ge_xSe_{35-x}$ alloys with a small grain size and their thermoelectric properties, S.A. Saleh	**, J. Physics 2 (2013) 4-11.**
	Raman spectroscopy and structural properties of $In_xBi_{40-x}Se_{60}$ system, S.A. Saleh, ***E.M.M. Ibrahim***, M.M. Wakkad,	Vibrational spectroscopy 67 (2013) 22-26.
	Effect of Dy^{+3} on the structure and static magnetic properties of spin-glass MnZn ferrite nanoparticles, *E.M.M. Ibrahim*,	J. applied Physics, 113 (2013) 154301.
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	The synthesis of superparamagnetic cobalt nanoparticles encapsulated in carbon through high-pressure CVD, Tony Jaumann, ***Eslam M. M. Ibrahim***, Silke Hampel, Diana Maier, Albrecht Leonhardt**,** Bernd Büchner,	Chemical Vapour Deposition 17 (2013) 1-7.
	Structural, Electrical and Thermoelectrical Properties of $(Bi_{1-x}Sb_x)_2Se_3$ Alloys Prepared by a Conventional Melting Technique, E. Kh. Shokr, ***E.M.M. Ibrahim***, A.M. Abdel Hakeem, A.M. Adam, J.	Experimental and Theoretical Physics, 116 (2013) 166-172.
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	Synthesis of Superparamagnetic Nanoparticles Dispersed in Spherically Shaped Carbon Nanoballs, *E.M.M. Ibrahim*, Silke Hampel, Jürgen Thomas, Diana Haase, A.U.B. Wolter, Vyacheslav O. Khavrus, Christine Täschner, Albrecht Leonhardt, Bernd Büchner	, J Nanopart. Res. 14 (2012) 1118.
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	The optical and electrical properties of $Bi_{40-x}In_xSe_{60}$ thin films, S.A. Saleh, I. A. Abdel-Latif, A. Al-Hajry,	**J. Physics 1 (2012) 9-14.**
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	Optical properties of Ge doped eutectic SbSe thin films, **S.A. Saleh** and A. Al-Hajry,	AIP Conf. Proc. 1370 (2011) 75-80.
	Studies on physical properties of $Bi_{40-x}In_xSe_{60}$ thin films, **S.A. Saleh**, A. A. Hendi, I. A. AbdelLatif	, J. American Science 7 (2011) 923-928.
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	Ibrahim, Silke Hampel, Jürgen Thomas, A.U.B. Wolter, Vyacheslav Khavrus, Christine Täschner, Albrecht Leonhardt, Bernd Büchner,	26, 2011 World EXPO center, Dalian, China
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	Room-temperature ferromagnetism in $Zn_{1-x}MnxO$. **A. M. Abdel Hakeem**	Journal of Magnetism and Magnetic Materials, 322 (2010),
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	Conditions of simultaneous growth and separation of single- and multi-walled CN_x nanotubes, Vyacheslav O. Khavrus, ***E.M.M. Ibrahim***, Albrecht Leonhardt, Silke Hampel, Steffen Oswald, Christine Täschner, Bernd Büchner,	J. Phys. Chem. C 114 (2010), 843–848.
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Lab instruments						
#	Device	quantity	Quality			
			Good	Poor	Need maintenance	malfunction
1	Vibrating sample magnetometer	1	√		yes	Software
2	Dielectric measurement system LCR	1	√		No	
3	Electrical measurements	1	√		No	
4	Thermoelectric measurement	1	√		No	
5	Atomic force microscope	1	√		No	

Instruments Description	
Device image توضع صورة للجهاز	Description /use وصف بسيط لاستخدامات الجهاز
	Vibrating sample magnetometer for magnetic measurements at room temperature
	Dielectric measurement system LCR for Ac electrical measurements
	Electrical measurements Fro Dc electrical measurements
	Thermoelectric measurement For Seebeck coefficient measurements

	Atomic force microscope for surface morphology

Evaluate the fulfillment of lab to appropriateness of areas, building installations, facilities and human resources standards

Areas of assessment		Indicators	Yes	Somewhat	No

Floor area and capacity	1	Adequacy of the total capacity of the lab for the number of researcher (1).			
Windows and doors	2	Availability of windows for adequate ventilations.			
	3	Ease of use of windows.			
	4	There are two exits (doors) at least (2).			
	5	There are signs to locate directions of emergency exits			
Equipment	6	Appropriate temperature during the lectures (3).			
	7	Availability of good ventilation (4).			
	8	The existence of adequate lighting (4).			
	9	Lab is connected to the Internet			
	10	The existence of directions inside the Lab showing entrances and emergency exits.			
Security and Safety	11	Existence of firefighting equipment near the hall (5).			
	12	Cleanliness of the room.			