كلية العلوم
Faculty of Science

جامعة سوهاج
University of Sohag

حاصلة على شهادة الاعتماد من الهيئة القومية
لضمان جودة التعليم والاعتماد في 12|7|2012م

Research Lab Sheet

Lab Name	Semiconductor Laboratory
Academic Year	

Basic Information	
Department	Physics
Location	Sohag University-Sohag-Egypt
Total area (m^2)	70

Lab Members				
No. of Prof.	No. of Ass. Prof.	No. of Lect.	No. of Ass. Lect. & Demonst.	No. of technicians
2	2	2	4	1

Staff members

#	Name	Scientific degree	e-mail	Specializations	C.V
1	Mostafa Mohamed Abd El-Raheem	Professor	elneh@yahoo.com		Link of homepage
2	Ahmed Mohamed Ahmed	Professor	Fikry_99@yahoo.com		
3	Abdou Kamal Diab Hemaia	**Ass.** Professor	diab_a_k@yahoo.com		
4	H.F.Mohamed	**Ass.** Professor	h.fathy@science.sohag.edu.eg		
5	Sara Abo Elhassan Mohamed	**Lecturers**	s.abuelhassan@science.sohag.edu.eg		
6	Abd elmoez Ahmed Mohamed	**Lecturers**	abdmoeaz@yahoo.com		

Ass. Lecturers & Demonstrators

#	Name	Scientific degree	e-mail	Specializations	
1	Esraa Yaseen Omar Mohamed	**Ass. Lecturer**	Esraayaseen65@yahoo.com		
2	Mostafa Mahmoud	**Demonstrator**	mostafa_mahmoud@science.sohag.edu.eg		
3	Sara Khaled	**Demonstrator**	mailto:Sarakhaled5753@gmail.com		
4	Amany Gad Ali	**Demonstrator**	mailto:amanygadgad111@gmail.com		
5	Aml Mahmoud	**Scince specialist**	Aml_mahmoud@science.sohag.edu.eg		

Theses produced by the Lab			
#	**Degree**	**Title**	**Approval date**
1	M. Sc	M. Sc. Effect of Sol-Gel parameters and Heat treatment on some physical properties of synthesized nanostructure TiO_2, for Salma Seddek Ayed	2020
2	M. Sc	M.Sc. Characterization and measuring of some properties of high temperature superconducting materials, fro: Amna Salah Mahmoud, Assiut University	2020
3	M. Sc	Preparation and characterization of $(CdS)_{1-x}(ZnS)_x$ for second generation solar cell applications, for Shimaa Salah Ali, Sohag University.	**2020**
4	Ph.D	Characterization and electronic properties of As-Te-Ga chalcogenide glass thin films. For Rashed Mohammed HassanAhmed, Assiut university,	2018
5	M. Sc	Magnetic and electrical properties of (La0.7Ba 0.3 MnO3)1-x/(Al2O3)x manganites.	2019
6	Ph.D	Properties of some transitional chalcogenous alloys based on bismuth	1999
7	**Ph.D**	**Magnetic and electrical properties of magnetites doped with lithium**	**2007**

8	Ph.D	Structural, electrical, and optical properties of Ge10-ASxTe90-X the chalcogenous system	2014
9	Ph.D	Development and characterization of nanomaterials zinc oxide-based	2015
10	Ph.D	Electrical and magnetic properties of (NdSrMnO) $_{1-x}$ (cro2) $_{x}$ based on spin valves	2016
11	M. Sc	Study of some properties of the transition of lanthanum manganate grafted with sodium	2007
12	M. Sc	Structural, electrical and thermal properties of the A9x(As04 se0b)chalcogenous system	2004
13	M. Sc	Structural and electrical properties of La 0.7Sr0.3MnO3 doped with Ni	2013
14	M. Sc	Study of some properties of the transition to La 0. Mn1-x Znxoy67Sr0.33	2012
15	M. Sc	Structural and electrical properties of La1-xSrxMn Oy	2012
16	M. Sc	Magnetoresistance enhancement of (LBMO)1-x/(NiO)X composites based on spin valves	2016
17	Ph.D	Study of some physical properties of different types of nanomagnets based on iron	2018
18	Ph.D	Measurements of the output coefficient of micro-radiation fields	2018
19	M.Sc	Transition properties of(Ga045In055Sb)alloy.	1998
20	M.Sc	Superconducting properties of(B,I,Pb)Sr-Ca-Cu-O	1999

Articles produced by the Lab

#	Title
1	Influence of Cr-doping on structural, magnetic and dielectric properties of M-type hexaferrites synthesized using microwave digestion technique. Ahmed M Abdel Hakeem, EMM Ibrahim, Hazem Mahmoud Ali, MM Abd El-Raheem, Adel Hamazaoui, Mahrous R Ahmed, 2022 in press
2	Modeling of thermal studies on melt quenched Ge18Bi4Se78 chalcogenide. AMAbdel Hakeem ,MMAbd El-Raheem* ,MMWakkad,HF Mohamed ,H M Ali, SK Mohamed and A K Diab, Phys. Scr. 96 (2021) 125727
3	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 Volume 121(2021) 111614
4	Study the effect of type of substrates on the microstructure and optical properties of CdTe thin films AMA Hakeem, HM Ali, **M M Abd El-Raheem**, M F Hasaneen, Optik 225 (2021) 165390
5	Effect of RF power of aluminium-doped zinc oxide films. Mohamed Fathy Hasaneen , **M M Abd El-Raheem** and Mahrous R. Ahmed, Applied Physics A 126 (2020) 1-10. https://doi.org/10.1007/s00339-020-04021-3
6	Structure and optical properties of thermally evaporated Te doped ZnSe thin films, M F Hasaneen, H M li, **M M Abd El-Raheem**, AMA Hakeem, Materials Sciences& Engineering B (2020) 262, 114704

7	Crystallization kinetics of Pb12Ge12Se76 chalcogenide glass. A. K. Diab, **M. M. Abd El-Raheem**, Essam R. Shaaban, H. M. Ali, M. M. Wakkad, Pase transition, Y. A. Taya & El Sayed Yousef, 93 (2020) 323-337
8	Structural, Electrical and OpticalCharacteristics of $_{Zn100-x}Cd_xO$ Thin Films Hend Alkhammash, H. Abd El-Ghanny, **M. M. Abd El-Raheem** Open Access Library Journal 2018, Volume 5, e4687
9	Effect of thermal annealing on structural, optical and electrical properties of transparent Nb2O5 thin films. A. Atta, M Elnahass, A. Hasanien, Kh El-Sabawy, **M. M. Abd El-Raheem**, A. Alhuthali, S. Alomairy, M. S. Algamdi, Materials Today Communications 13(2017) 112-118 Ellipsometric study of Sb doped ZnO thin films deposited by magnetron co-sputtering method Ateyyah M Al-Baradi, **M. M. Abd El-Raheem**, F. Abdel- Wahab, S. Alomairy, M. A. Alharbi , El-Naggar, A.A. Albassam, Journal of Ovonic research, 2017
11	Studies on transparent conductor oxide thin films prepared by sputtering method. **M. M. Abd El-Raheem**, A. Atta, A. M. Amry, Ateyyah M. Al-Baradi, S. Alomairy, Journal of Computational and Theoretical Nanoscience, Vol. 14, no. 1-7 (2017)
12	Morphological and optical characterization of Mg-ZnO thin films deposited by co-magnetron sputtering technique S. Alomairya, F. Abdel- Wahab, H. M. Ali , **M. M. Abd El-Raheem**, Ateyyah M Al-Baradi, S.A. Amin, Chalcogenide Letter., vol 12, no. 2(2017) 533-547
13	Structural and optical characterization of Sb-doped ZnO co-sputtered thin films. **M. M. Abd El-Raheem**, S. A. Amin, M. A. Alharbi, and A. M. Badawi, Journal of optical technology, vol 83 (2016) 375
14	Optical characteristics of transparent samarium oxide thin films deposited by the radio-frequency sputtering technique.

	A A Atta, M M EL-Nahass, Khaled M Elsabawy, **M M Abd El-Raheem**, A M Hassanien, A Ahuthali, Ali Bbadawi and Amar Merazga, Pramana – J. Phys. (2016) 87:72.
15	Effect of gas pressure and film thickness on the optical constants of transparent conducting oxide based on zinc oxide. **M. M. Abd El-Raheem**, A, K. Diab, Abdullah Alhuthali, Ateyyah M. Al-Baradi, Journal of Optical technology, vol. 83 (2016) 30
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17	Effect of preparation condition on the optical properties of transparent conducting oxide based on zinc oxide. **Mostafa Mohamed Abd El-Raheem**, Hoda Hamid Al-Ofi, , Abdullah Alhuthali, Ateyyah M. Al-Baradi, Optics, 4(3) (2015) 17-24
18	Influence of Silver Vapours on the Transport of Nitrogen Plasma Properties. Ahmed M. A. Amry, **Mostafa M. Abd El-Raheem**, Gamal A. Yahya, Journal of Modern Physics, 6 (2015) 553-565
19	Influence of Silver Vapours on the Transport of Nitrogen Plasma Properties AMA Amry, **MM Abd El-Raheem**, GA Yahya - Journal of Modern Physics, 2015
20	Study of topological morphology and optical properties of SnO_2 thin films deposited by RF sputtering technique A. Alhuthali, M. M El-Nahass, A. A. Atta, **M. M. Abd El-Raheem**, Khalid M. Elsabawy, A. M. Hassanien, Journal of luminescence,158(2015) 165-171
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56	**Low- Field MR Behavior in La0.7Sr0.3MnO3/ZrO2 Composite System A. M.** Ahmed, A. K. Diab, H. F. Mohamed, Abd El-Mo'ez. A. Mohamed, A. E. A. Mazen, Aml M. Mohamed, Advanced Materials World Congress in Izmir on September 16-19, 2013 (Turkey**)**
57	**Magnetic and Electrical properties of Lanthanum Strontium Manganites doped by Bi**, A. M. Ahmed, H. F. Mohamed, Martin Šoka,Low temp phys. Vol. 40, N 5, (2014) 418.
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73	**Magnetic, magnetocaloric and thermoelectric properties of nickel doped manganites, Abd El-Moez A. Mohamed , B. Hernando b, A.M. Ahmed, J. All. Comp 692 (2017) 381e387**
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Instruments Description	
Device image	**Description /use**
توضع صورة للجهاز	وصف بسيط لاستخدامات الجهاز

	**KSL 1700x oven used in melting samples and the heat treatments that we need in preparing the samples, and its temperature reaches 1700 C.**
	Oven drying up to 100 degrees Celsius.

	GSL 1500X oven used in melting samples and the heat treatments that we need in preparing the samples, and its temperature reaches 1500 C.
	The magnetization was measured using EV9 vibrating sample magnetometer (VSM). The dc magnetization measurements were done under applied magnetic field 10 mT. Curie temperature, TC for each sample has been experimentally defined through the minimum of first temperature numerical derivative for M(T) curves. The powder samples, compacted inside cylindrical pillboxes (Ø=5.85 mm and l=2.60 mm), weighted by a Sartorius balance model CP225D, and fixed to an acrylic rod by means a double Scotch tape. In order to perform temperature dependence analysis, we have secured ensemble with PTFE tape too before the rod was fastened at the linear motor of the EV9 vibrating sample magnetometer (VSM).

	balance model CP225D
 	Sample Magnetometer It is used to measure samples under magnetic field were carried out using 0.6T electromagnet. Newport series N177 from Oxford instrument Co. LTD equipped with current supply Hewlett-Packard 6015A. Current source (CST 100 DELTA Elektronik), digital multimeter (Keithley 177 microvolt) with sensitivity equal to 1μV for measuring the voltage, digital multimeter (Keithley 175 A) for measuring the current A was used.

Lab instruments

#	Device	quantity	Quality			
			Good	Poor	Need maintenance	malfunction
1	Balance	1	√			
2	Ovens	3	√			
3	Computers	3	√		√	
4	Printer	2	√		√	

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.	√		