CURRICULUM VITAE

Ibrahim Maged, Assistant Professor

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PERSONAL INFORMATION

Name: Ibrahim Sayed Ahmed Ibrahim Maged
Date of Birth: August 21, 1983
Nationality: Egyptian
Fluent Languages: Arabic ▪ English
Marital Status: Married

QUALIFICATIONS

Feb 2018 **Ph. D. in Engineering Physics**
Benha Faculty of engineering, Benha University, Egypt.

2012 **M.Sc. in Interaction of Laser with Matter**
Laser Science and interactions Department, The National Institute of Laser Enhanced Sciences (NILES), Cairo University, Egypt

2005 **B.Sc. in Communication▪** Very good (83.95 %)
Department of Electrical Engineering, Benha Faculty of Engineering, Benha University, Egypt

GRADUATION PROJECT

Power Line Communication (PLC)
Degree: Excellent
Project description:

Power line communications (PLC) refers to the Concept of transmitting information using the electrical Power distribution network as a communication channel. This technology allows a flow of information through the same cabling that supplies electrical power. This idea helps in bridging the gap existing between the electrical and communication network.

Master

Optimization of Er^{3+} doped glass used as optical fiber amplifier (EDFA) for telecommunication applications

The Er^{3+}:Yb^{3+} co-doped potassium-lead-germanate glass with optimum ratio 0.5 mol. % of Er^{3+} and 2.5 mol. % of Yb^{3+} (1:5) was prepared by using the conventional melting and quenching method. Raman spectroscopy and FT-IR were used to study the structure and the vibrational modes of this glass. Measurement of Raman spectroscopy showed that the maximum phonon energy of this glass was approximately 811 cm^{-1}. Optical absorption was measured to make it easy to choose the pump wavelength. X-ray diffraction confirmed that there were no periodic arrangements in the glass; i.e. it was amorphous. Differential thermal confirmed the thermal stability of this glass. The two probe method was used to investigate the electrical behavior and to measure the DC-conductivity and its temperature dependence. The introduced here system was designed using a longitudinal pumping source of 808 nm diode laser at different powers and the diagnoses of the system output was measured by double monochromator (SpectraPro 500i of ACTON) in the range of 790-1800 nm. The system output was found to increase with increasing the pumping power. The emission of the rod showed strong line at about 1600 nm. This might confirm that the proposed here design of Er-glass laser can be used in telecommunication applications.

Ph. D.

Coherent Quantum Spin Transport in Spintronic Nanodevices

The present thesis is devoted to investigate the quantum spin transport through nanodevices. Two nanodevices are considered in this thesis which are:

(i) Diluted magnetic semiconductor nanodevice under the influence of spin thermoelectric effect is investigated which is modeled as a semiconductor quantum dot connected to two leads of diluted magnetic semiconductors. The electrons spin transport through this nanodevice under the influences of ac-field with mid-infrared (MIR) frequency range and magnetic field is managed. The photon-assisted tunneling probability, which was obtained by solving Schrodinger

equation of our studied nanodevice, helps us to give an expression for the thermoelectric parameters. It was shown from the results that both Seebeck and Peltier coefficients and the figure of merit have high values. Also, this nanodevice has a quite high thermoelectric efficiency value. The presented diluted magnetic semiconductor nanodevice here is promising thermoelectric nanodevices as indicated from its result for the spin caloritronics nanoelectronics devices applications such as computer CPUs and nanocontrollers as coolers (Peltier coefficients) or for energy harvesting (Seebeck coefficient).

(ii) The transport characteristics of both quantum spin and valley in normal/ferromagnetic/normal silicene junction are studied under the influence of magnetic field, the frequency of the induced ac-field, and exchange field energy of ferromagnetic silicene effects. Both valley and spin resolved conductances are derived after solving the Dirac equation. These conductances show an oscillatory behavior after performing their numerical calculations which is due to the resonant tunneling regime of the ferromagnetic silicene confined states. The calculated Spin and valley polarizations values show that they might be tuned by applying suitable gate voltage (i.e., appropriate electric field) and the exchange field of the ferromagnetic silicene. The present work is promising for silicene spintronics and valleytronics application.

Publications

Badr Y. A., Mahmoud F. M., and Ibrahim. S. M., "***Optimization of Er^{3+} doped glass used as optical fiber amplifier (EDFA) for telecommunication applications***", Journal of American Science, **9**(10), 2013.

Ibrahim S. Ahmed, Mina D. Asham and Adel H. Phillips, "***Spin Thermoelectric Effect of Diluted Magnetic Semiconductor Nanodevice***", Journal of Multidisciplinary Engineering Science and Technology (JMEST), **3**(4), 2016.

Ibrahim S. Ahmed, Mina D. Asham and Adel H. Phillips, "***Coherent Spin-valley polarization characteristics of silicene field effect transistor***", Journal of Multidisciplinary Engineering Science and Technology (JMEST), **4**(2), 2017.

Ibrahim Sayed Ahmed, Mina Danial Asham and Adel Helmy Phillips, "***Spin-valleytronics of silicene based nanodevices (SBNs)***", Journal of Magnetism and Magnetic Materials, 456, 199–203, (2018).

MOST RECENT AND PREVIOUS EMPLOYMENT

Feb 2018-present (Full-time) Assistant Professor of Engineering Physics
Department of Basic Engineering Sciences
Benha Faculty of Engineering
Benha University
Egypt

2012-2018 (Full-time) Assistant Lecturer of Engineering Physics
Department of Basic Engineering Sciences
Benha Faculty of Engineering
Benha University
Egypt

Teaching Engineering Physics, Modern Physics and Lab Experiments. Research in laser science (optical fiber amplifier) involving: fabrication of the used material, study its optical properties, and the design of the optical setup of the amplifier.

2007-2012 (Full-time) Instructor of Engineering Physics
Department of Basic Engineering Sciences
Benha Faculty of Engineering
Benha University
Egypt

Teaching Engineering Physics and Lab Experiments. Research in laser science (optical fiber amplifier) involving: fabrication of the used material, study its optical properties, and the design of the optical setup of the amplifier.

2006-2007 Engineer
From 6/2006 to 8/2006 Engineer in Maintenance company in New Maadi
From 9/2006 to 2/2007 Engineer in Silicon-expertTechnologies (Intelligent Component Management).

2005-2006 (Part-time) Instructor
Department of Electrical Engineering
Benha Faculty of Engineering
Benha University
Egypt

Teaching Electrical Measurements and Electronics Lab Experiments.

TEACHING ACTIVITIES

1. Engineering Physics Undergraduate
2. Modern Physics Undergraduate

TRAINING COURSES andSOFTWARE TOOLS EXPERIENCE

- Microcontroller course "Systems & Biomedical Engineering dept. – Cairo University".
- C & C++ course "Systems & Biomedical Engineering dept. – Cairo University".
- CDMA Course "Jelecom A.D. Panasonic".
- GSM course "Jelecom A.D. Panasonic".

COMPUTER SKILLS

Very good knowledge in
- Using Matlab
- Using Electrical programs “Orcad-Workbench”.
- Operating systems "DOS - Windows" and Using Microsoft office.
- Computer maintenance.

REFERENCES

- **Dr. Ayman Mostafa**: undergraduate lecturer and graduation project supervisor
  Department of Electrical Engineering, Benha Faculty of Engineering, Benha University, Egypt
  E-mail: ayman_mustafa46@yahoo.com Tel.: 002 0122 391 0459

- **Prof. Yehia Abdelhamid Badr**: M.Sc. research work supervisor
  Laser Science and interactions Department, The National Institute of Laser Enhanced Sciences (NILES), Cairo University, Egypt
  E-mail: ybadr@niles.edu.eg Tel.: 002 0122 312 8022

- **Assist. Prof. Mahmoud Fathi**: M.Sc. and Ph.D. research work supervisor
  Department of Basic Science, Benha Faculty of Engineering, Benha University, Egypt.
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- **Assist. Prof.Tarek Abdul Kadr**:
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- **Prof. Adel Helmy Phillips:** Ph.D. research work supervisor
  E-mail: adel.phillips@gmail.com Tel.: 002 0111 917 6362
  Department of Engineering Physics and Mathematics Faculty of Engineering Ain Shams University, Egypt.

- **Dr. Mina Danial Asham:** Ph.D. research work supervisor
  E-mail: minadanial@yahoo.com Tel.: 002 0100 508 0168
  Department of Basic Engineering Science, Benha Faculty of Engineering, Benha University, Egypt.