Dr. Hayfaa R. Alradhi

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Proactive and creative PhD researcher

Experienced in working independently and as part of a group

Data analysis and ability to communicate my findings

Knowledge of Semiconductor's nanostructures growth and characterisation.

EDUCATION

2014 - 2018 PhD student in Semiconductor Nano- Physics (Lancaster University/UK)

Passed viva (9/4/2018).

2003 - 2007 MSc in Microwaves Physics (Basra University/Iraq)

1998 - 2001 Bachelor in Physics (Basra University/Iraq)

Certified course in teaching English (4 weeks) British council:

https://www.futurelearn.com/certificates/eznh5v3

RESEARCH FOCUS

My PhD studies have focused on the growth of III-V Semiconductors Nanostructures (nanowires and thin films) on Si wafers. I have studied the above structures growth, and characterised them using scanning electron microscopy (SEM), X-ray diffraction, transmission electron microscopy (TEM) and photoluminescence. My work has involved wet (chemical) etching the Si to remove the oxide layer, annealing the wafers and the epitaxial growth of nanowires and thin films by Molecular Beam Epitaxy (MBE). I have also fabricated transistors using single nanowires, and mesa devices to act as photodetectors. Throughout my PhD study, I presented at the following conferences:

1. H. Alradhi, A. Ezek, A. Sanchez, A. zhuko and Q. Zhuang. " X-ray diffraction

study of InAsSb nanowires grown by molecular beam epitaxy". **UK semiconductors 2015,(poster presentation).**

2. Hayfaa Alradhi, X. R. Chen, J. Shao, Zhiming Jin, A. M. Sanchez, P. Yates, K.Durose, and Q. D. Zhuang. "Realization of InAs/AlSb core-shell nanowires by MBE with enhanced optical properties" **Nanowires workshop, Spain , Barcelona 2015 , (poster presentation).**

3. Hayfaa Alradhi, Zhiming Jin, A. M. Sanchez, P. Yates, K. Durose, and Q. D.Zhuang. "Realization of InAs/AlSb core-shell NWs grown by MBE". **LancasterUniversity Science and Technology Christmas Conference 2015 (Poster presentation).**

4. Q. D. Zhuang, H. Alradhi, X. R. Chen, J. Shao, H. H. Fang, W. D Hu, S. H. Hu.,Z. M. Jin, A. M. Sanchez. "InAs/AlSb core-shell nanowires with enhanced optical properties for phototransistors" **ICMBE Montpellier, France 2016(oral presentation).**

5. H. Alradhi, J. Zhiming, A. Sanchez, P. Yates, K. Durose X Chen, J Shao "optically efficient InAsSb/GaSb core-shell nanowires grown by molecular beamEpitaxy". Conference: **European Workshop on Molecular Beam Epitaxy at: St Petersburg, Russia 2017** (poster presentation).

6. Zhi-Ming JIN,. A. Aebnye, Hayfaa Alradhi Qian-Dong Zhuang. "Flexible photodetectors based on InAs nanowires grown on HOPG" **2017, Conference: European Workshop on Molecular Beam EpitaxyAt: St Petersburg, RussiaOrdinal: 19th (oral presentation)**

7. Hayfaa Alradhi, Zhiming Jin, A. M. Samchez, Q. Zhuang." Realization and the optical properties of Type III InAs/GaSb core-shell nanowires" **2019 Annual UK semiconductor/Sheffield University.(oral presentation)**

I also published my work in three peer-reviewed journals:

1. Optically efficient InAsSb nanowires for silicon-based mid-wavelength optoelectronics. http://iopscience.iop.org/article/10.1088/1361-6528/aa59c5/meta

2. Mid-infrared photoluminescence up to 290 K reveals radiative mechanisms and substrate doping-type effects of InAs nanowires. DOI: 10.1021/acs.nanolett.6b04629

3. Novel type-II InAs/AlSb core-shell nanowires and their enhanced negative photocurrent for efficient photodetection. DOI: 10.1002/adfm.201705382.

TEACHING EXPERIENCE

- 19 years teaching in the Basra University Physics Department laboratories. This also involved writing exams for physics undergraduate students, and invigilating the students'

examinations. In this role I gained a lot of experience in report writing and the writing up of research work. (2001-2020)

- 1 academic year teaching in the 1st year undergraduate laboratories in Lancaster University Physics Department. This included marking and supervising students' work. (2014)
- Part-time invigilator, a scribe and amanuensis at Lancaster University (2016-2017).
- Lecturer in Basra university for oil and gas (January 2020-current time).
- English teaching certificate from British Council. https://www.futurelearn.com/certificates/eznh5v3

SKILLS

- X-ray diffraction and analysis.
- Scanning Electron Microscopy (SEM) measurements and characterisation.
- I-V measurements and analysis.
- Writing scientific papers and reports.
- Meeting deadlines.
- Worked closely with research colleagues, department staff and external contacts.
- Experienced in working with a wide range of students.
- Made presentations to both academic and non-specialist audiences.

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