

Curriculum Vitae

Dr Amna Hassan Ahmed Hassan

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Education:

- 2010 – 2014 University of Warwick, UK **PhD in Physics**
 - PhD title: “Transport properties for pure strained Ge quantum well”
- 2008-2009 Nottingham University, UK **CELE English Course**
- 2006-Now Faculty of Science, University of Tripoli, Libya **Lecturer**
- 2002-2006 Faculty of Science, University of Tripoli, Libya **Lecturer Assistant**
- 1998 – 2002 Faculty of Science, University of Tripoli, Libya **Msc in Physics**
 - Final Year Research Project titled “تصميم القطب العلوي للخلاية الشمسية السيليكونية” Design of top Grid contact of Si Solar Cell ” under the supervision of Y. M. Hassan and K. Sharif
- 1992 – 1996 Faculty of Science, University of Tripoli, Libya **Bsc in Physics**

Courses and Workshops

- 2013 “Epitaxy Growth Fundamentals”, MPAGS, University of Warwick, UK
- 2013 “Introduction to Microscopy”, MPAGS, University of Warwick, UK
- 2013 “Decision making and Leadership”, University of Warwick, UK
- 2013 “Scientific Academic Writing”, University of Warwick, UK
- 2012 “Nanosurface”, MPAGS, University of Warwick, UK
- 2012 “Crystallography”, MPAGS, University of Warwick, UK
- 2011 “Endnote”, University of Warwick, UK
- 2011 “Low Temperature Techniques Course”, University of London, UK
- 2010 “Teamworking and Networking for postgraduate researchers”, University of Warwick, UK

Skills & Techniques:

I am familiar with the following equipment/characterisation techniques:

- Structural characterisation of semiconductor materials including X-ray diffraction, atomic force microscopy, transmission electron microscopy, selective chemical etching, electrochemical capacitance-voltage profiling
- Semiconductor device fabrication techniques
- Electrical characterisation of semiconductor devices including the use of parameter analysers and LCR meters for I-V and C-V measurements, Hall effect measurements in low and high magnetic field and parameter extraction techniques for semiconductor diodes, capacitors and transistors
- Cryogenic device characterisation using low temperature probe station, closed and continuous flow cryostats

Previous Work Experience:

- 2018-now **Head of undergraduate office committee**, Faculty of Science, University of Tripoli, Libya
- 2014-2018 **lecturer and member of undergraduate office committee**, Faculty of Science, University of Tripoli, Libya

- 2013 – 2014 **Laboratory Demonstrator** “Undergraduate laboratory demonstrator for 2nd year electronics course. Responsible for marking practical work. Physics Department, University of Warwick
- 1998-1999 **Member of Undergraduate Office committee**, University of Tripoli, Physics Dept
- 1997-2003 **Private Mathematics, physics Tutor** Students in the last year of secondary school, Alturia School, Tripoli Libya

Fields interested to teach:

Solid state physics, Semiconductor devices, Quantum Physics, Quantum Mechanics, Quantum Solid state, Quantum transport, electronics and Mechanics

Current Research Interests and Responsibilities:

- Characterization and the Simulation of Si Solar Cells
- Nano electronic especially for Semiconductors.
- Electronic Devices Simulation
- Spintronics

Publications :

- Dobbie, M. Myronov, R.J.H. Morris, M.J. Prest, **A.H.A. Hassan**, J. Richardson-Bullock, V.A. Shah, E.H.C. Parker, T.E. Whall and D.R. Leadley, “Ultra-High Hall Mobility ($1 \times 10^6 \text{ cm}^2 \text{ V}^{-1}\text{s}^{-1}$) in a Two-Dimensional Hole Gas in a Strained Germanium Quantum Well Grown by Reduced Pressure CVD” International SiGe Technology and Device Meeting (ISTDM 2012), Berkeley, June 4-6, (2012)
- **A.H.A. Hassan** , A. Dobbie, M. Myronov, R. Morris, M. Prest, J. Richardson-Bullock , V. Shah, T. E. Whall, E.H.C. Parker, D.R. Leadley, “Hole Transport Properties in Modulation Doped Germanium Heterostructure” Condensed Matter and Materials Physics, CMMP Edinburgh, 3-7 Sept. (2012)
- Dobbie, M. Myronov, R.J.H. Morris, **A.H.A. Hassan**, M.J. Prest, J. S. Richardson- Bullock, V.A. Shah, E.H.C. Parker, T.E. Whall, and D.R. Leadley, “Ultra-High Hall Mobility of One Million in a Two-Dimensional Hole Gas in a Strained Germanium Quantum Well” Applied Physics Letters 101, 172108 (2012)
- **A.H.A. Hassan**, O.A. Mironov, A. Feher, E. Cizmar, S. Gabani, R.J.H. Morris, A. Dobbie, M. Myronov, and D.R. Leadley “Pure Ge quantum well with high hole mobility”, Intl Conf on Ultimate Integration on Silicon (ULIS-14) Warwick, March 2013
- **A.H.A. Hassan**, O.A. Mironov, A. Dobbie, R.J.H. Morris, J.E. Halpin, V.A. Shah, M. Myronov, D.R. Leadley, A. Feher, E. Cizmar, S. Gabani, V.V. Andrievskii and I.B. Berkutov, “Structural and Electrical Characterization of SiGe Heterostructures Containing a Pure Ge Strained Quantum Well”, ELNANO-2013, April 2013
- O.A. Mironov, **A.H.A. Hassan**, A. Dobbie, R.J.H. Morris, A. Feher, E. Cizmar, S. Gabani, I.B. Berkutov, J.E. Halpin, S.D. Rhead, P. Allred, and D.R. Leadley, “New RP CVD grown ultra-high performance selectively B-doped pure-Ge 20 nm QWs on (100)Si as basis material for post-Si CMOS technology”, Phys. Status Solidi C 11, No. 1, 61–64 (2014).
- O.A. Mironov, **A.H.A. Hassan** , R.J .H. Morris, M. Uhlarz, D. Chrastina, J.P. Hague, S. Kiatgamolchai, R. Beanland, A. Dobbie, M. Myronov, S. Gabani, I.B. Berkutov, M. Helm, O. Drachenko, D.R. Leadley “Ultra High Hole Mobilities in a Pure Strained Ge Quantum Well”, International Conference on Silicon Epitaxy and Heterostructures (ICSI-8), Fukuoka, Japan, June 2013
- O.A. Mironov, **A.H.A. Hassan**, A. Dobbie, R.J.H. Morris, D.R. Leadley, M. Helm, O. Drachenko, E. Cizmar, S. Gabani, I.B. Berkutov, “Ultra High Mobility 2DHG in Pure 20 nm Ge Quantum Wells with Remote B-doping”, Int. Conf. on the Electronic Properties of 2D Systems (EP2DS-20), Wroclaw, July 2013

- O.A. Mironov, **A.H.A. Hassan**, R.J. .H. Morris, M. Uhlarz, D. Chrastina, J.P. Hague, S. Kiatgamolchai, R. Beanland, A. Dobbie, M. Myronov, S. Gabani, I.B. Berkutov, M. Helm, O. Drachenko, D.R. Leadley, “Ultra High Hole Mobilities in a Pure Strained Ge Quantum Well”, Thin Solid Films 557, 329-333, 2014
- **A.H.A. Hassan**, O.A. Mironov, R.J.H. Morris, A. Dobbie, R. Beanland, M. Myronov and D.R. Leadley, “Anisotropy in the 2DHG mobility measured in a strained Ge quantum well” Applied Physics Letters 104, 132108, 2014
- O. A. Mironov, M. Myronov, **A.H.A. Hassan**, A. Dobbie, R. J. H. Morris, V. Shah, M. Prest, I.B. Berkutov, V. V. Andrievskii, and D. R. Leadley, “Effective mass and scattering in ultra- high hole mobility strained germanium”, presentation at 6th international conference Materials Science and Condensed Matter Physics September 11-14, 2012, Chisinau, Moldova, 2012.
- **A. H. A. Hassan**, R. J. H. Morris, O. A. Mironov, S. Gabani, A. Dobbie, and D. R. Leadley, “An origin behind Rashba spin splitting within inverted doped sGe heterostructures” Appl. Phys. Lett. 110, 042405, 2017
- **A. H. A. Hassan**, A. Diyaf, U. Elfurawi and A.E. Abobke, “ Assessment of different Growth Techniques of sGe Heterostructures for Electronic and Spintronic Devices” Journal of Electronic Systems and Programing 1, 2, 2019.