

Omer Arif

Date of birth:

| | Nationality:

| Gender: |

• WORK EXPERIENCE

01/11/2016 – 31/01/2021 – PISA, Italy

P.H.D STUDENT – Scuola Normale Superiore

Currently, I am last year Ph.D. student in the field of Nanoscience and I will submit my doctoral thesis in December 2020. During my Ph.D. study, I have learned the epitaxial growth of III-V Semiconductors materials on Si (111) substrates by Chemical Beam Epitaxy. My activity is focused on the growth of InAs and InSb based heterostructures nanowires. I have studied detailed morphological, structural, and compositional analyses of the nanowires as a function of growth parameters by scanning and transmission electron microscopy and by energy-dispersive X-ray spectroscopy.

01/09/2013 – 01/10/2015 – Lahore, Pakistan

MASTER IN SOLID STATE PHYSICS – Centre of Excellence in Solid State Physics, University of the Punjab

My Master thesis was focused on the synthesis of barium hexaferrites nanoparticles by the sol-gel method and their morphological, structural, magnetic, and dielectric characterization studies.

• EDUCATION AND TRAINING

01/11/2016 – 31/01/2021 – PISA, Italy

P.H.D IN NANOSCIENCE – Scuola Normale Superiore

Thesis title: "Self-catalyzed and catalyst-free III-V Semiconductor Nanowires grown by CBE"
Expected to Defend on January 2021
Supervisor: Prof. Lucia Sorba

01/09/2013 – 01/10/2015 – Lahore, Pakistan

MASTER IN SOLID STATE PHYSICS – University of the Punjab

Thesis title: "Effect of sintering temperature on structural, morphological, dielectric and magnetic properties of barium hexaferrites nanocrystallites"
Grade: Very good

01/09/2009 – 24/07/2013 – Lahore, Pakistan

BACHELOR OF SCIENCE (B.SC HONOURS) IN PHYSICS – University of the Punjab

17-12-2020

● JOB-RELATED SKILLS

Job-related skills

1. **Vacuum & Growth System**
 - Epitaxial Growth of III-As and III-Sb based Semiconductors Nanowires by Chemical Beam Epitaxy
 - Experience working with calibration of growth rates and maintenance of CBE system
 - Growth of thin films by RF magnetron sputtering unit
2. **Characterization techniques**
 - Scanning electron microscopy: Imaging, Energy dispersive x-ray spectroscopy (EDX)
 - Data analysis of Transmission electron microscopy
 - Optical microscopy
3. **Optical lithography**
 - Prepared pattern substrates for the selective area growth
4. **Other relevant skills**
 - Working experience in cleanroom environment ISO 6 and ISO 7
 - Oxygen plasma cleaning
 - Metal evaporation
 - Profilometer
 - Wet/dry Etching
 - Served as trainer for different equipment for others students

● DIGITAL SKILLS

Microsoft Word | Microsoft Excel | Power Point | ImageJ | Origin Pro | Matlab (Basic) | Microsoft Office | Inkscape

● COMMUNICATION AND INTERPERSONAL SKILLS

Soft skills

- Ability to work autonomously and in a multi-cultural collaborative environment
- Quick learner
- Problem-solving
- Well-disciplined

● LANGUAGE SKILLS

Mother tongue(s): URDU

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C2	C2	C2	C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

17-12-2020

PUBLICATIONS

Publications

1. Electrical probing of carrier separation in InAs/InP/GaAsSb core-dualshell nanowires
Sedighe Salimian, Omer Arif, Valentina Zannier, Daniele Ercolani, Francesca Rossi, Zahra Sadre Momtaz, Fabio Beltram, Sefano Roddaro, Francesco Rossella, Lucia Sorba
Nano Res. 2020, 13, 1065–1070.
<https://link.springer.com/article/10.1007/s12274-020-2745-5>
2. Growth of Self-Catalyzed InAs/InSb Axial Heterostructured Nanowires: Experiment and Theory
Omer Arif, Valentina Zannier, Vladimir G Dubrovskii, Igor V Shtrom, Francesca Rossi, Fabio Beltram, Lucia Sorba
Nanomaterials 2020, 10(3), 494.
<https://www.mdpi.com/2079-4991/10/3/494>.
3. Growth and strain relaxation mechanisms of InAs/InP/GaAsSb core-dual-shell nanowires
Omer Arif, Valentina Zannier, Ang Li, Francesca Rossi, Daniele Ercolani, Fabio Beltram, Lucia Sorba
Cryst. Growth Des. 2020, 20(2), 1088–1096.
<https://pubs.acs.org/doi/10.1021/acs.cgd.9b01421>
4. Self-catalyzed InSb/InAs quantum dot nanowires
Omer Arif, Valentina Zannier, Francesca Rossi, Daniele Ercolani, Fabio Beltram, Lucia Sorba
submitted to *Nanomaterials*.
5. Influence of sintering temperature on structural, morphological and magnetic properties of barium hexaferrite nanoparticles
M Burhan Shafqat, Omer Arif, Shahid Atiq, Murtaza Saleem, Shahid M Ramay, Asif Mahmood, Shahzad Naseem
Mod. Phys. Lett. B 2016, 30(9), 1650254.
<https://www.worldscientific.com/doi/abs/10.1142/S0217984916502547>

CONFERENCES AND SEMINARS

Conferences

1. Strain Relaxation Mechanisms in InAs/InP/GaSb Core-Multishell Nanowires
O. Arif, V. Zannier, D. Ercolani, Ang Li, F. Rossi, S. Salimian, S. Roddaro, F. Rossella, F. Beltram and L. Sorba
Nanowires Week 23-27 September 2019, Pisa, Italy.
Presented: *Poster*
2. Strain Relaxation Mechanisms in InAs/InP/GaSb Core-Multishell Nanowires
O. Arif, V. Zannier, D. Ercolani, Ang Li, F. Rossi, S. Salimian, S. Roddaro, F. Rossella, F. Beltram and L. Sorba
FisMat 29 September to 4th October 2019, Catania, Italy.
Presented: *Oral talk*
3. Influence of sintering temperature on structural, morphological and magnetic properties of barium hexaferrite nanoparticles
O. Arif, M. B. Shafqat, S. Atiq, M. Saleem, S. M. Ramay, A. Mahmood, and S. Naseem
International conference of Solid State Physics 13-17 December 2015, University of the Punjab, Lahore, Pakistan.
Presented: *Oral talk*

HONOURS AND AWARDS

Honours and awards

1. I was awarded one full four years scholarship for the Ph.D. program in Nanosciences by the Scuola Normale Superiore, Pisa Italy in 2016.
2. Got 2nd Position in Master (Solid State Physics) among 22 students (2013-2015).

17-12-2020