

# Surender Subburaj

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[https://www.researchgate.net/profile/Surender\\_Subburaj](https://www.researchgate.net/profile/Surender_Subburaj)

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## PROFILE:

- ✓ Self-motivated Ph.D. candidate with demonstrated research expertise growing III-Nitride semiconductors for optoelectronic applications. Strong interpersonal skills
- ✓ Experimental & Characterization Techniques: **Four years Hands on experience on MOCVD, HRXRD, PL, Raman, AFM, HALL Measurement and Probe Station (IV)**
- ✓ Rich experience in Lithography (DWL, RIE) and Device Fabrications (Solar Cells).

## EDUCATIONS:

- PhD Visiting Scholar, 2018 (May-October) at University of Nebraska, Lincoln, Nebraska, United States of America
- PhD. (Physics- Material Science), 2018 at Anna University, Chennai, India.
- M.Sc. Physics, 2014 (Scored 82%, First Class with Distinction & University Rank holder) At University of Madras, Chennai, India.
- B.Sc. Physics, 2012 (Scored 79%, First Class) at University of Madras, Chennai, India.

## RESEARCH INTREST:

- General Interest: Thin films, Nanoscience and Technology, Semiconductors
- Specific Interest: MOCVD-Epitaxial Growth, Group III-Nitrides for Optoelectronic Applications.

## **Ph.D Thesis Title:**

- ✓ “Investigations on InGaN/GaN MQW structures grown by MOCVD for photovoltaic applications”

## **HONORS & AWARDS**

- ❖ **Bhaskara Advance Solar Energy (BASE) Prestigious Research fellowship Award** (Funded by Indo US Science and Technology Forum) – May 2018 to October 2018.
- ❖ **Senior Research Fellowship (SRF)**, awarded by UGC Govt. of India – 2017.
- ❖ **Tamil Nadu State Eligibility Test (TNSET) Award**, For Lectureship – 2016.
- ❖ **Junior Research Fellowship (JRF) awarded** by UGC Govt. of India-2015.
- ❖ **Anna Centenary Research Fellowship (ACRF)**, awarded by Anna University, Tamil Nadu, India (First Rank in Ph.D. Entrance Exam) – 2015.
- ❖ **Junior Research Fellowship (JRF) awarded by Department of Science and Technology (DST)** through SERI Project -2014.
- ❖ **University Rank holder in M.Sc. Physics**, University of Madras, India-2014.

## **Research Experience:**

- **Crystal Growth Centre Anna University, Chennai, India, 2014 August - 2018 April**, as a Ph.D. Research Scholar, Growth and Characterization of GaN, AlN, InGaN, AlGaIn and AlInGaIn by MOCVD for optoelectronic device applications

• Dept. of Electrical and Computer Engineering, University of Nebraska, Lincoln, NE, USA,  
2018 May – Present, As PhD Visiting Scholar through BASE Indo-US Fellowship, Working on  
Fabrication of efficient InGaN/GaN MWQ based Solar cells and UV, Visible Photo detectors.

### List of Publications in International Journals

1. **Surender, S**, Pradeep, S, Prabakaran, K, Sumithra, SM, Shubra Singh & Baskar, K 2018 “Passivation of yellow luminescence of MOCVD grown InGaN/GaN heterostructures by Nitrogen - ion implantation”, Nuclear Instruments and Methods in Physics Research, Volume 433, 15 October 2018, Pages 76-79.
2. **Surender, S**, Pradeep, S, Prabakaran, K, Sumithra, SM, Shubra Singh & Baskar, K 2017, ‘The role of indium composition on thermo-electric properties of InGaN/GaN heterostructures grown by MOCVD’, Journal of Alloys and Compounds, vol. 734, pp. 48 - 54 .
3. **Surender, S**, Prabakaran, K, Loganathan, R, Pradeep, S Shubra Singh & Baskar, K 2017, ‘Effect of growth temperature on InGaN/GaN heterostructures grown by MOCVD’, Journal of Crystal Growth, vol. 468, pp. 249 - 251
4. **Surender, S**, Pradeep, S, Prabakaran, Shubra Singh & Baskar, K 2017, ‘Effect of silicon doping in InGaN/GaN heterostructure grown by MOCVD’, AIP Proceedings, vol. 1832, pp. 120023.
5. **Surender, S**, Pradeep, S, Ramesh, R & Baskar, K 2016, ‘Investigation of structural, optical and electrical properties of Cp2Mg flow varied p-GaN grown by MOCVD’, AIP Proceedings, vol. 1731, pp. 080083.
6. **Surender, S**, Baskar, K 2018 ‘Growth and Fabrication of InGaN/GaN heterostructure based Metal-Semiconductor-Metal (MSM) Photodiodes’ Material Science & Engineering International Journal, Vol 2, pp. 70-73.
7. R. Anitha, Durga Sankar Vavilapalli, Sumithra Sivadas Menon, **S. Surender**, K. Baskar, Shubra Singh, 2018, ‘Hybrid gallium nitride/organic heterojunction with improved electrical properties for optoelectronic applications’ Journal of Materials Science, DOI: 10.1007/s10853-018-2408-z
8. S. Pradeep, R. Loganathan, **S. Surender**, K. Prabakaran, K. Asokan, K. Baskar, 2018 ‘Effect of gamma irradiation on AlInGaN/AlN/GaN heterostructures grown by MOCVD’ Superlattices and Microstructures, DOI: 10.1016/j.spmi.2018.05.003.
9. Prabakaran, K, Ramesh, R, Jayasakthi, M, **Surender, S**, Pradeep, S, Balaji, M, Asokan, K & Baskar, K 2017, ‘Electronic excitation induced structural and optical modifications in InGaN/GaN quantum well structures grown by MOCVD’, Nuclear Inst. and Methods in Physics Research, B, vol. 394, pp. 81-88

10. Loganathan, R, Prabakaran, K, Pradeep, S, **Surender, S**, Singh, S & Baskar, K, 2016, 'Influence of TMIn flow rate on structural and optical quality of AlInGaN/GaN epilayers grown by MOCVD', Journal of Alloys and Compounds, vol. 656, pp. 640-646 (Annexure I). (Impact Factor: 3.133).
11. Prabakaran, K, Ramesh, R, Jayasakthi, M, Loganathan, R, **Surender, S**, Pradeep, S, Singh, S & Baskar, K, 2017, 'Blue-Green-Red Emission From the InGaN/GaN Heterostructures Grown By Metal Organic Chemical Vapor Deposition', Materials Today Proceedings, vol.4 (14), pp. 12577-12581.
12. Pradeep, S, **Surender, S**, Prabakaran, K, Jayasakthi, M, Singh, S, Asokan, K, Bakar, K, 2018, 'Formation of graphitic and diamond-like carbon by low energy carbon ion implantation on c plane sapphire substrate', Thin Solid Films, vol.649, pp. 12-16.

### List of Conferences / Workshop Attended

- Poster presented on 'InGaN/GaN heterostructures for thermoelectric applications' at International Workshop on Advance Materials and Device Technology (IWAMDT) 2017, Crystal Growth Centre, Anna University, Chennai, India.
- Poster presented on 'Effect of magnesium and silicon doping in GaN thin films grown by MOCVD' at 19th International Workshop on Physics of Semiconductor Devices (IWPSD) 2017, IIT Delhi, Delhi, India.
- Poster presented on 'Structural and thermoelectric studies on InGaN/GaN heterostructures grown by MOCVD' at 4<sup>th</sup> International Conference on Nano Science and Nano Technology (ICONN) 2017, S.R.M University, Chennai, India.
- Participated two days course on "STATE OF THE ART ANALYTICAL EQUIPMENT" 9-10 January, 2017 at Crystal Growth Centre, Anna University, Chennai, India.
- Participated Global Initiative of Academic Networks (GIAN) on "Low Dimensional Structures and Devices: From Research to Industry" 6-12 January 2017 at Crystal Growth Centre, Anna University, Chennai, India.
- Poster presented on "Effect of Silicon Doping in InGaN/GaN Heterostructure Grown by MOCVD" 61st DAE SSPS 26-30 December, 2016. At KIIT University, Bhubaneswar, India.
- Poster presented on 'Growth and characterization of InGaN/GaN heterostructures grown by Metal Organic Chemical Vapour Deposition (MOCVD)'. 26th National seminar on "Crystal Growth and Epitaxy" 14-15 March 2016 at Crystal Growth Centre Anna University Chennai, India.
- **Oral Presented** On "Effect of growth temperature on the incorporation of indium in of InGaN/GaN heterostructures grown by Metal Organic Chemical Vapour Deposition (MOCVD)". 4-6 March 2015 at IIT Jodhpur, India.

- Paper presented on “Investigation on structural, optical and electrical properties of Cp<sub>2</sub>Mg flow varied p-GaN grown by MOCVD” in 21-25 December 2015 at Amity University, Noida, India.
- Three days Special Lecture on “How to do a Good Ph.D Thesis” 3-5 August 2015 at Crystal Growth Centre Anna University Chennai, India.

## PERSONAL INFORMATIONS:

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|--------------------------------|---|
| ✓ Name: Surender Subburaj      | Gender: Male  |
| ✓ Date of Birth: June -01-1992 | Age : 26  |
| ✓ Nationality: Indian          | Languages Known: Tamil, English   |
| ✓ Permanent Address            | No 1 B Second cross street,<br>Abiramipuram, Pudur, Ambattur,<br>Chennai-600053 |

## WORK STYLE:

- Willing to perform basic tasks and move on to solve complex problems
- Able to learn new knowledge and adapt to new environments quickly
- Strong independent work style and excellent teamwork skills
- Well-organized and passionate

## REFERENCES:

- **Dr. K.Baskar (Ph.D Supervisor)**

Professor, & Vice Chancellor  
Manonmanium Sundaranar University,  
Tirunelveli, Tamilnadu, India  
Former Director, Crystal Growth Centre,  
Anna University, Chennai-600025.  
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- **Dr. Shubra Singh**

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- **Dr. Yongfeng Lu (Ph.D Advisor)**

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