

Anirban Saha.

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Institute of Radio Physics & Electronics.

Centre for Research in Nanoscience & Nanoelectronics.

University of Calcutta.

Kolkata.

India.

Objective:

Seeking a challenging academic position in the field of teaching Gate and ESE students of *Electronics and Communication* so that I can lead them to the successful career path.

Position Held:

- ❖ Gate-Faculty of **S.R.I.E Institute**, Kolkata
- ❖ **Senior Researcher** (UGC Fellow) (From 2015 onwards) at Institute of Radio Physics and Electronics, Centre for Research in Nanoscience & Nanoelectronics, University Of Calcutta.

Performance in Gate and ESE exam:

1. Secure **553** rank in Gate 2012.
2. Cleared ESE 2015 written exam & appeared for P.I.

Teaching Experience:

June 2014 to June 2015: *Assistant Professor* at Swami Vivekananda Institute of Technology, WBUT, India.

2014 to Till date: *Part time Gate Faculty* of many ECE students of different colleges at SRIE institute in Kolkata.

Subjects taught- Network Analysis , Electronics Devices , Signal and Systems
Analog & Digital Electronics, Control System,
Analog & Digital Communication.

I have supervised two groups of students (5 each) of last year students, who have completed 2 *final year projects* named -

- *Design of Thin Film Optical filter in UV range.*
- *Thermoelectric Solar cooler.*

Areas of Expertise:

Special: Solid state Devices, Control system, Photonics, Optical filter using thin films, Laser Physics, Porous Silicon, Nano-phonic devices, Nano-electronics, Displays, Solid State Devices.

Education Career:

Examinations	University	Year of Passing	Marks
M.Tech [Photonics] (University of Calcutta)	Institute Of Radio Physics & Electronics, University Of Calcutta.	June, 2014	1st Semester: 7.95 [CGPA] out of 10.
			2nd Semester: 8.40 [CGPA] out of 10.
			3rd Semester : 8.73 [CGPA] out of 10
			4th Semester: 9.45 [CGPA] Out of 10

Examinations	University	Year of Passing	Marks														
B.Tech (University of Calcutta)	Institute Of Radio Physics & Electronics, University Of Calcutta	2011	<table border="1"> <thead> <tr> <th>Semester</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>1st</td> <td>7.62</td> </tr> <tr> <td>2nd</td> <td>8.11</td> </tr> <tr> <td>3rd</td> <td>8.19</td> </tr> <tr> <td>4th</td> <td>8.13</td> </tr> <tr> <td>5th</td> <td>8.37</td> </tr> <tr> <td>6th</td> <td>10.0</td> </tr> </tbody> </table>	Semester	Marks	1 st	7.62	2 nd	8.11	3 rd	8.19	4 th	8.13	5 th	8.37	6 th	10.0
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			1 st	7.62													
			2 nd	8.11													
			3 rd	8.19													
			4 th	8.13													
			5 th	8.37													
6 th	10.0																
Total - 8.21[CGPA] out of 10.																	
B.Sc. (Dinabandhu Andrews College, University of Calcutta)	Physics[Major], Mathematics, Electronics	2008	58.90%														
Higher Secondary Class-XII	Science	2004	76.40%														
Secondary Class-X	General	2002	86.4%														

Presentations given

- I. Magic Bullet and Plasmonic Nano Bubble as Nanomedicine.
- II. Thin Film Optical Filter.
- III. Porous Silicon, Distributed Bragg Reflector.

Computer Skills:

Microsoft Office, Math Lab, Optsim, Multi-Physics, VHDL, Pspice, Origin, Comsol.

Extra-Curricular Activity:

Experience in Playing Volleyball (Volleyball trainee by *Govt. of West Bengal*. India).

Innovated the design and worked out the University of Calcutta's Technology Hall's reunion T Shirt of 2013.

Member of Mess-committee in [2008-2009] and [2012-2013], Technology Hall, University Of Calcutta.

Projects Undergone:

B.Tech Project Work:

In B.Tech I have done a compulsory project named "*Design of Microwave Resonator using IMPATT diode on a Microstrip Patch*" under Prof. Dr. P.K Goswamy, University of Calcutta [<http://www.irpel.org/faculty.php?id=42>].

The project work was done in a group of 2 members. Our group was assigned with a project named "*Design and simulation of Microstrip cavity resonator*" from the faculty of science. We designed the resonator at 10 GHz frequency taking Teflon as the substrate. Firstly taking the reference frequency we calculated the dimension of the patch using the electromagnetic theory and Maxwell's equation. Then the characteristic impedance of the patch is calculated with the help of effective dielectric constant of it. The effective dielectric constant was due to fringing effect of the field in the air. The effective length of the patch was calculated also. Next we found the variation of the patch length and width with different dielectric materials. We also found the variation of resonant frequency with different dielectric materials and width to length ratio of the patch.

Lastly the patch was fed by IMPATT diode. During the mounting of IMPATT diode on the Microstrip patch, we studied the static and dynamic characteristics of the IMPATT diode, such as, variation of the avalanche region width, doping concentration, maximum field etc. The patch dimension was so calculated that it could act as an oscillator. So proper biasing circuit was designed for RF isolation. A low pass filter was used using the concept that short length of relatively high and low impedance acts as a series inductance and shunt capacitance respectively. We found the optimum condition at 10 GHz with deviation of 0.036 GHz.

M.Tech Project Work :

In M.Tech course I have a project work on “*Design, simulation and fabrication of DBR using AlGa_N and Ga_N thin films for VCSEL application*” under the guidance of Dr. Anirban Bhattacharyya [<http://www.irpel.org/faculty.php?id=29>] at Center for Research in Nanoscience and Nanotechnology (CRNN), University of Calcutta. I have designed the optical filter using consecutive thin films of HFO₂ and TiO₂. Since it is a reflective filter, so it took 10 layers to give 100% reflectivity at 450 nm. I have used the transfer matrix approach to design it with the help of Maxwell's equations and by the boundary condition at different interfaces. The optical thickness of the layers has been calculated. I have used the Math Lab coding for calculation purpose. I have with ellipsometry technique to find the optical properties of different materials. Then the thin film layers are fabricated in the lab according to the design. Later on the optical characterization has done on that thin film optical filter. Using ellipsometry technique & transmission analysis for optical characterization of different materials & doing experiment on the dependency of refractive index on molar fraction in alloy Al_xGa_{1-x}N. Analyzing the transmission, reflection spectra of our fabricated DBR. So that we can find the optical properties (i.e., R.I, thickness of the film etc.) of the thin film materials. At last we have tried fabricate Gas-sensors using porous silicon DBR structure.

Seminars and workshops attended:

In 2006, I attended a seminar on “Experiment of Physics” at University of Burdwan, West Bengal, India.

In 2007, I attended a seminar on “Role of experiments in science” at University of

In 2012, I took a training on “Communication Technology” at Regional Telecom

In 2013, I took part in the seminar on “Photonic Technologies” organized during CODEC’13 at University of Calcutta, Govt. of India.

Names & address of referees:

<p>Dr. Anirban Bhattacharyya. Assistant Professor. Institute of Radio Physics & Electronics. University of Calcutta. Email: anirban1@gmail.com Webpage: http://www.irpel.org/faculty.php?id=2 <u>9</u> -</p>	<p>Dr. Susanta Sen. Professor. Institute of Radio Physics & Electronics. University of Calcutta. Email: susanta.rpe@gmail.com Webpage: http://www.irpel.org/faculty.php?id=5 <u>2</u> -</p>
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