

Laboratory Profile

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Major work in our laboratory

We are working in three major areas namely Organic solar cell, Low temperature characterization of opto-devices and Instrumentation and. Our approach in these areas are mentioned briefly in the following section.

a. Organic solar cell:

Aim: Recently work on organic solar cell is quite promising. We are working for last 8 years in this area. Our main aim is to develop a prototype organic solar cell design indigenously including the electrode materials. Instead of characterizing the devices we are interested to develop the prototype module which may be used commercially. For this purpose we are concentrating on the design of the electrode materials, proper encapsulation etc. use of our own technique for lithography, screen printing, metal plating and etching for the fabrication of the solar cell is quite encouraging. Our work last few years is quite encouraging.



b. Low temperature Characterisation of opto-devices :

Aim: We have also done sufficient work on the low temperature characterization of some photodiode and light emitting diode (LED) at low temperature (down to liquid nitrogen temperature) which may be applied for defence application. There are many areas particularly in space and oceanographic research where the ambient temperature goes below the room temperature. For communication we need different opto-devices. Study on the performance of such devices are very effective and useful. We also investigate the low temperature charge transport property of these devices.

c. Instrumentation:

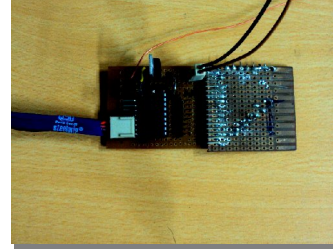
Aim: Our main aim is to design and develop some low cost indigenous instruments which can be used in academic and other commercial applications. We are trying to pay our attention in different aspects of the instrumentation such as electronic, mechanical assembling, testing and calibration.



Control of light intensity in a closed chamber



Spin Coating Design



Stepper motor controller

1. To repair or re-model of old instruments
2. New Design
3. To select some thrust area of application

Our specialization:

- a) Low level dc signal processing for temperature, light etc measurement and control system.
- b) Instrumentation through interfacing with computer and use of software programme for signal processing.
- c) Some robotic action to execute some automatic mechanical work in different area of application.

Technique : We use both the analog, digital, microprocessor based and optical Method (photonics) to process the signal.

Out put : Our developed instrumentation has been used by different workers and some of which has been published in the National and International Journals.

Our Limitations: In this area we are lacking the facility of a good workshop for the mounting of components particularly different robotic actions .These type of work will be extremely useful for our development .

Measurement facility in our Laboratory

1.	Sample Preparation & Chemical Room <ul style="list-style-type: none"> • Different chemicals, Dye • Screen Printing • Lithography • Electroplating • Etching
2.	Sample Preparation <ul style="list-style-type: none"> • Spin coater • Vacuum Coating Unit • Microbalance
3.	Morphological Study <ul style="list-style-type: none"> • Image Capture , CCD Camera

	<ul style="list-style-type: none"> • Image analysis • Particle distribution
4.	Spectroscopic Measurement Spectrometer, UV-VIS-IR
5.	Photo Action Spectra Set up .Monochromator
6.	Outdoor measurement (JU, IACS, CGCRI, IICB) <ul style="list-style-type: none"> • XRAY • SEM, TEM, AFM Particle analyser
7.	Electrical Measurement set up <ul style="list-style-type: none"> • Dark I-V measurement Pulse measurement
8.	Photovoltaic Measurement <ul style="list-style-type: none"> • Voc, Isc, FF, Efficiency
9.	Low temperature set up for Optical Measurement <ul style="list-style-type: none"> • Cryostat <ul style="list-style-type: none"> • Temperature measurement and control
10.	Data Analysis and Documentation <ul style="list-style-type: none"> • Different software for writing, grapping, imaging etc. <ul style="list-style-type: none"> • MATLAB, MATHEMATICA • PSPICE, CIRCUIT MAKER, CHEM DRAW etc
11.	Device model Software <ul style="list-style-type: none"> • MINIMOS
12.	Workshop and mechanical instruments design <ul style="list-style-type: none"> • Cutting tools <ul style="list-style-type: none"> • Grinding, drilling etc for nano technology and science
13.	SET UP : 13, 14, 15 INSTRUMENTATION (13. Analog, 14. Digital and 15. Computer/Microprocessor control) <ul style="list-style-type: none"> • Low level DC signal processing • Sensors : Temperature, Light, Sound, pressure, weight, distance etc • Temperature control, measurement <ul style="list-style-type: none"> • Cryostat design (list attached in our website)
16.	ROBOTICS & COMPUTER PROGRAMMING
17.	Library <ul style="list-style-type: none"> • Books , Journals • Thesis and our article Some of our design
18.	Our write ups

List of Publication of Dr. N. B. Manik

A. Journal Papers

2013

1. Effect of temperature on the intensity and carrier lifetime of an AlGaAs based red light emitting diode, P. Dalapati, N. B. Manik, A. N. Basu, Journal of Semiconductors, 2013, 34(9)-0920011-15
2. Modification in martensite morphology and magneto-strain through rapid solidification and heat treatment of NiMnGaAl alloy, J. Magnetism and Magnetic Materials, 2013, 343-169 - 172

2012 :

1. Enhancement of efficiency of Phenosafranin based organic photovoltaic devices using nano particles, S.Saha and N.B.Manik*Indin J. Physics, DOI 10.1007/s12648-012-0090-6(11th May2012)
2. Study of Solvent Dependence of Methyl Red and C₆₀ based Organic Photovoltaic Devices, S.saha and N.B.Manik, Thin Solid Film, accepted.

2011 :

1. Photocurrent growth and decay behavior of crystal violet dye based photo electrochemical cell In photovoltaic mode. Md.Rabiul Islam, S. Maity, A.Haldar, N.B.Manik*, A.N. Basu Ionics DOI 10.1007/s11581-011-0586-7 (2011)
2. Trapping of light energy by modification of back electrode of Crystal violet dye and Fullarene based organic photovoltaic device by S. Saha, Md. R. Islam and N. B. Manik*, Accepted in Photovoltaic technical conference 2010, France (May 25-27, 2011)
3. Photovoltaic effect of Malachite Green dye in different electrode system by A. Halder, S. Maity, S. Saha, Md. R. Islam and N.B. Manik* , accepted in Photovoltaic technical conference 2010, France (May 25-27, 2011)
4. Effect of nano particles on Phenosafranin dye based organic photovoltaic devices, S. Saha, N.B. Manik*, accepted in 37th IEEE PVSC, Washington (June 19-24, 2011)
5. Multidimensional self – assembly of peanut shaped PbS nanostructures. AliHossain Khan^a, Sasanka Maji^a, S. Chakraborty^a, N.B.Manik^b and Somobrata Acharya^{*a}, RSC Advances DOI: 10.1039/c1ra001f(2011)

2009 :

1. Electrical and photovoltaic characterizations of methyl red dye doped solid-state photoelectrochemical cell, A.Haldar, S Maity, N.B.Manik. Ionics DOI 10.1007/s11581-008-0237-9 (2009)
2. Degradation of Safranin T dye-based photo electrochemical organic photovoltaic devices, S.Maity, A.Haldar, N.B.Manik Ionics (2009)
3. Enhancement of power Conversion Efficiency by Using C₆₀ in CuPc based photovoltaic Device S. Maity, A. Halder, S.Saha, N.B. Manik. (23-24) Lucknow, 2009

2008 :

1. Effect of plasticizers on Safranin –T dye based solid state photoelectrochemical cell, S. Maity, A. Haldar, and N. B. Manik, Ionics , DOI 10.1007/s11581-008-0217-0, 2008.

2007 :

1. Study on typical behavior of transient nature (I-t) and hysteresis nature of I-V characteristics of dye doped solid state thin film photoelectrochemical cell by A. Haldar, S. Maity and N. B. Manik, *Ionics* 108 (2007) 267; DOI: 10.1007/s 11581-007-0108-9
2. Effect of C₆₀ on methyl red and crystal violet dye doped photovoltaic device by A. Haldar, S. Maity and N. B. Manik, *Ionics* 153 (2007); DOI: 10.1007/s11581-007-0153-4
3. Effect of back electrode on photovoltaic properties of crystal violet dye doped solid state thin film by A. Haldar, S. Maity and N.B. Manik, *Ionics* 194 (2007); DOI: 10.1007/s11581-007-0194- 8
4. Safranine – T dye based photo electrochemical solar cell : effect of electrodes on devices Mechanism by S.Maity, N.B. Manik, proceeding IEEE , 2007, IWPSD held at TIFR, Mumbai In December 2007.

2006:

1. Dependence of the driving current on the harmonic behavior of giant magneto-impedance voltage of Co-based amorphous wires, S. K. pal, N. B. Manik, and A. Mitra, *J. Magnetism and Magnetic Materials*, 305,(1), 2006, 240.
2. Dependence of frequency and amplitude of the ac current on the GMI properties of Co based amorphous wires, S. K. Pal, N. B. Manik and A. Mitra, *Materials Science and Engineering, A* 415 (2006) 195-201.

2005 :

1. Charge Transport mechanism dye sensitized polymer thin film of single layer device architecture by A . Haldar, *Ionics* 11 (2005) 315
2. Study on steady state dark I-V characteristics of Phenosafranin dye based solid state thin film Photo electrochemical cell and calculation of band gap energy by A. Haldar, *Indian Journal of Physics*.79 (2005) 765

2004 :

1. Calibration of nonlinear signal : Development of continuous liquid level meter by using opto-sensor, N. B. Manik, *Proceeding of Int. Conference on Communications, devices and Intelligent system (CODIS)*, 2004, Kolkata.
2. Study on photovoltaic properties of a dye sensitized organic/polymer semiconductor in single layer device architectures, *Proceeding of Int. Conference on Communications, devices and Intelligent system (CODIS)*, 2004, Kolkata.

3. Analysis of transient current in Safranin –T dye doped solid state thin film using fractal concepts, Proceeding of Int. Conference on Communications, devices and Intelligent system (CODIS), 2004, Kolkata.

2003 :

1. Nonexponential photocurrent growth and decay behavior in a photoelectrochemical cell using Safranin – T dye as optical active material, S. K. Dey, N. B. Manik* and A. N. Basu, J. Materials Science, 38,(1), 2003, p93-99.

2002 :

1. Study on the effect of trap levels on steady state dark I-V characteristics in Safranin- T based solid state thin film photoelectrochemical cell, S. K. Dey, R. Islam, N. B. Manik* and A. N. Basu, J. Material Science: Materials in Electronics, 13, 2002, p 249-252.
2. Magnetic Barkhausen emissions study in heat treatment Fe-Nb-Cu-Si-B alloy, A. Mitra, S. Palit Sagar and N. B. Manik, IEEE Transaction on Magnetism, 38,(6), 2002, p 3669-3674.

2001 :

1. Study on photoconductivity of dye polymer based solid state thin film, S. K. Dey, N. B. Manik*, A. N. Basu, J. of Applied Biochemistry and Biotechnology, 96, 13, p55- 62, 2001.
2. A dye/polymer based solid state film photoelectrochemical cells for light detection, S. K. Dey, N. B. Manik*, S. Bhattacharya and A. N. Basu, Syn. Metals, Sisir Kumar Dey, N. B. Manik, S. Bhattacharya and A. N. Basu, Synthetic Metals, Volume 118, Issues 1- 3, 2001, p 19-23.
3. Studies on propagation of light from light emitting diode (LED) through a glass tube and development of an opto-sensor for the continuous detection of liquid level meter, N. B. Manik*, S.C. Mukherjee and A. Basu, Optical Engineering, 40 (12), 2830 –2836, 2001.

2000 :

1. Characterisation of the photodetector and light-emitting diode at above liquid nitrogen temperature N. B. Manik*, A. N. Basu, S. C. Mukherjee, Cryogenics, 40, 2000, p-341-344

1999 :

1. A PC - XT/AT based low temperature display and control system of an optical cryostat, N.B. Manik*, T. K. Ballabh and A. N. Basu, Indian J. of Pure and Appld. Phys., 1999, Vol. 37, p 482.

1997 :

1. Cold junction compensation for high and low temperature, N. B. Manik*, A. N. Basu and S. C. Mukherjee, Indian J. Physics, 1997, 71 A (4), p 421-428.

1996 :

1. Continuous low temperature control system with pulse-width modulation technique, N. B. Manik*, A. N. Basu, A. Chatterjee and S. C. Mukherjee, 1996, Indian J. of Pure and Applied Physics, **34**, 1996, 980.
2. A continuous flow optical cryostat, N. B. Manik*, A. N. Basu, A. Chatterjee, S. C. Mukherjee and A. Bose, Indian J. Cryog., 1996, **17(4)**, 23
3. Construction and Calibration of a Low Temperature Diode Thermometer, N. B. Manik*, S. C. Mukherjee and A. N. Basu, Indian J. Cryog., 1994, Vol. 19, No.2, p- 21. (Back issue published in 1996).
4. Calibration and display technique of a nonlinear signal and a computer based low temperature measurement system using thermocouple sensor, N. B. Manik* and A. N. Basu, Indian J. Cryogenics, 19, 1996, p 21-23.

Paper communicated

1. Transient current study in Safranin-T dye doped solid state thin film, Md. Rabiul Islam, S. Saha, N. B. Manik* and A. N. Basu, Communicated to Solid state Ionics, Kluwer Academic Publishers, UK).
2. Observation of negative resistance in Safranin –T dye doped in solid state thin film photo electrochemical cell, N. B. Manik*, Md. Rabiul Islam, S. K. Dey and A. N. Basu, Communicated to Appld. Physics. Letter.
3. Effect of dispersion parameter on photovoltaic property of Safranin-T dye based photo electrochemical cell; S. Maity , A. Halder, N. B. Manik *

Conference Papers

2011 :

1. Trapping of light energy by modification of back electrode of Crystal violet dye and Fullarene based organic photovoltaic device by S. Saha, Md. R. Islam and N. B. Manik*, Accepted in Photovoltaic technical conference 2010, France (May 25-27, 2011)
2. Photovoltaic effect of Malachite Green dye in different electrode system by A. Halder, S. Maity, S. Saha, Md. R. Islam and N. B. Manik* , accepted in Photovoltaic technical conference 2010, France (May 25-27, 2011)

3. Effect of nano particles on Phenosafranin dye based organic photovoltaic devices, S. Saha, N.B. Manik*, accepted in 37th IEEE PVSC, Washington (June 19-24, 2011)
4. Effect of TiO₂ nano powder on Phenosafranin dye based hybrid solar cell, S. Saha, N.B. Manik*, accepted as a poster in National Seminar on Inorganic Chemistry – 2011 and The Celebration of 150th Birth Anniversary of Acharya P. C. Ray, Jadavpur University, (July 8-9, 2011)
5. Organic photovoltaic Devices as Renewable Energy Source Understanding of Charge Transport Mechanism. N.B. Manik ICAM- 2011 Coimbatore (December 14 to 15).
6. Dye Sensitized Photo electro-chemical cell as Organic Photo-voltaic, Dr.S.Maity 2011, Bangalore

2010 :

1. Electrical and photovoltaic properties of Methyl Violet dye based solid state photoelectrochemical Cell. A. Haldar, Md. Rabiul Islam and N.B. Manik. CMDAYS- 2010, Kolkata.
2. Study on the Organic photovoltaic Devices Based on Methyl Red dye and C60. S.Saha, N.B. Manik and A.N. Basu. CMDAYS-2010.Kolkata

2009 :

1. Enhancement of power Conversion Efficiency by Using C60 in CuPc based photovoltaic Device S. Maity, A. Halder, S.Saha, N.B. Manik. (23-24) Lucknow, 2009
2. Comparison of Photovoltaic Effects using Crystal Violet, Methyl Red and Safranin-T dye based Photoelectrochemical cell . Lucknow 21-23rd December 2009 , Sutapa Saha, Ajanta Haldar, Subhasis Maity, N.B. Manik
3. Effect of variation on concentration on Methelen Blue dye based organic solid state thin film and comparison on photovoltaic parameters. CMDAYS 2009, Jadavpur University, 26-28th August 2009 ,Ajanta Haldar and N.B. Manik, Sutapa Saha.

2008 :

1. Analysis of a photocurrent growth and decay of crystal violet dye based photo electrochemical Cell in photo voltaic mode” by N.B. Manik , S. Maity, A . Haldar , TPE 08, Germany.

2007 :

1. Safranin – T dye based solid state photo electrochemical cell “ ; S. Maity, A . Haldar and N.B. Manik, CMDAYS – 2007, NIT, Rourkella, Orissa.

2. Bias dependent exponentially distributed trap assisted charge transport in crystal violet dye based Organic photo – electrochemical cell “; S.Maity, A . Haldar, N.B. Manik. Seminar at BARC, Mumbai.

2002 :

1. Current transient study in sandwiched Safarnine-T dye doped PVA system, Md. Rabiul Islam, N. B.Manik*, A. N. Basu, March Meeting, 2002, Indiana

2001 :

1. Study on the effect of trap levels on steady state dark I-V characteristics in Safranin-T based solid state thin film photoelectrochemical cell, 3 rd international conference on electroluminescence of Molecular Materials and related phenomena ; Los Angeles; 5th to 8th september 2001, N. B. Manik*

2. A dye/polymer based solid state film photoelectrochemical cell used for light detection, 3rd international conference on electroluminescence of Molecular Materials and related phenomeno ; Los Angeles; 5th to 8th September 2001, S. K. Dey, N. B. Manik*, S Bhattacharya and A. N. Basu.

1999 :

1. Micromagnetic study in nanocrystalline $Fe_{72}Nb_{4.5}Cu_1Si_{13.5}B_9$ alloy, International Conf. on Rapidly Quenched Materials, RQ10, 1999, Bangalore, S. Palit, I. Chattoraj, N. B. Manik and A. Mitra.

2. Study on the photo conductivity of dye-polymer based solid state thin film, S. Dey and N. B. Manik*, National Symposium on ‘Biomolecular Electronics Interfacing Physics and Chemistry with Biology, NPL, New Delhi, 16-17th Sep.1999.

3. Effect of plasticizers on electrical conductivity of PEO-NH₄ClO₄ complex, S. Dey, N. B. Manik* and T. R. Middya, Condensed Matter Days, 26 –28 August, 1999, Jadavpur University.

4. Electrochromic effect of polyaniline thin film in solid state, S. Dey and N. B. Manik*, Condensed Matter Days, 26 – 28 August, 1999, Jadavpur University.

1996 :

1. A PC-XT/AT based low temperature control system of an optical cryostat, N. B. Manik*, Condensed Matter Days, 1996, 29 - 31, August, organised by Tripura University, Agartala, India.

2. A brief report on the uses of microwave heating and prevention of pollution, National Workshop on 'Recent Trends in Instrumentation for Analysis of Environmental Contaminants, Jadvpur University, 1996, N. B. Manik* and A. K. Mukhopadhyay.

Research Project Undertaken

1. Study on the gas absorption property of activated charcoal, under UGC minor research project Scheme, 1997-1998.
 2. Study of electrochromism effect on solid state thin film organic dye samples (polyaniline), Under the UGC minor research project scheme, 1998-2000.
 3. Development of a continuous liquid level meter for cryogenic liquid with opto-sensor – UGC major Research Project, Rs.5.78 Lakh.
 4. Investigation of the effects of trap charges on photovoltaic properties of some dye Sensitized organic/polymer semiconductors in different device architectures, DRDO, Rs.17.65 Lakh
1. Studies on trap charges and photovoltaic properties of organic solar cell. UGC, Rs. 10.76 lakh, Sanctioned in the year 2007. 3 years.
 2. Study and development of Donor – Acceptor type organic photovoltaic device, DST, India, 26,54.390 lakh, Sanctioned in the year 2007
 3. Study of the performance of IR Emitter and photodetector at Low Temperature Applicable and defence research DRDO , RS. 14.00 Lakh Sanctioned in the 02.11.2010 (**Running**)
 4. Study on the Effect of Different Nano Particles on Crystal Violet Dye Based Organic Photovoltaic Cells, CSIR , Rs.13,00,000/-, year 2012 (Running)
 5. Study on the Carbon Nano Tubes on Organic Solar Cells, UGC,Rs.11,40,000/- year 2012 (Running)

Ph.D Supervision

Ph. D. obtained

6. Sm. Sharmistha Palit : Characterisation of Fe-based amorphous and nanocrystalline magnetic materials and their application as a sensor,2004.
2. Sri Pritam Kumar Dev: Preparation and Characterisation of nanosized Ferrites for magneto-Optic Devices,2004.

3. Sri Sisir Kumar Dey: Studies on organic dye based solid state photoelectrochemical cell
4. Mrs. Ajanta Halder: Photovoltaic properties and charge transport mechanism of dye doped organic solid state thin film
5. Sri Subhasis Maity: Study on the preparation and charge transport of few dye sensitized organic solar cell
6. Md. Rabiul Islam: Studies on the optical detection in solid state thin film photo-Electrochemical cell.

Ph. D. Guidance

7. Mrs. Sutapa Saha : Study and development of Donor –Acceptor type Organic photovoltaic devices
8. Mr. Satnam Singh: Studies on Ni MnGa based ferromagnetic shape Memory alloys development by Melt spinning technique .
9. Mr. Pradip Dalapati : Study of the performance of IR Emitter and photodetector at Low Temperature Applicable and defence research DRDO

M. Phil / M.E / M. Tech / M. Pharm level (completed)

The following students have done their M.Sc project under my supervision.

1. Continuous liquid level meter by optosensor, Gopinath Singhe, N.B. Manik and A.N. Basu, 1995.
2. To study diode as a thermometer, Sisir Kr Senapati, N.B. Manik, A.N. Basu, 1995
3. Study the characteristics of various light emitting diode (LED) at low Temperature, Soumendu Sengupta, N.B Manik and A.N. Basu, 1996.
4. Study of characteristics of various photodetector at low temperature, Arun Kr Samanta, N.B Manik and A.N. Basu, 1996
5. Control of temperature by computer, Biplab Kr. Paul, N.B. Manik and A.N. Basu, 1996.
6. Measurement of low temperature and construction of a digital thermometer, Debasis

- Dhawa, N.B. Manik and A.N. Basu, 1996.
7. I-V characteristics of sandwiched phenosafrenin solid state thin film, Md. Rabiul Islam and N.B. Manik, 1999.
 8. Switching characteristic of the photodiode at low temperature, Arun. Kr. Pal, N.B. Manik, 1998.
 9. Design of software and hardware for interfacing of analog signal to computer through serial port, Sauradip Malkkhandi, A.N. Basu, N.B. Manik, 1999.
 10. Study of polarization effect of solid state ionic conduction and also the characteristic of the same, Arup Kumar Dey, N.B. Manik, 1999.
 11. Generation of arbitrary waveforms, Paritosh Nandi, N.B. Manik, 1997.
 12. Study of characteristics of various photodetector at low temperature, Arun Kumar Samanta, N.B. Manik and A.N. Basu, 1996
 13. Study of photoconductivity on the organic dye polymer based solid state thin film, Sisir Das, N.B. Manik and A.N. Basu, 1999
 14. Measurement of response speed of thermocouple and diode temperature sensors, Arnab Chakraboarty, N.B. Manik and A.N. Basu, 1997.
 15. Interactive software for database management and 3-dimensional display of real and simulated particle collision events, Souvik Prasad, N.B. Manik and A.R. Dev, 1999.
 16. Studies on frequency dependence conductivity of ionic solution, Joydeb Acharya, N.B. Manik and S.C. Bera, 1998.
 17. The design of a null detector, Atin Polley, N.B. Manik and A.N. Basu, 1999.
 18. Resistivity measurement of porous carbon with varying pressure, Sujit Kumar Ghosh, N.B. Manik, 1998.
 19. A computer based controlled device for 2-axis mechanical revolution with stepper motor, Suraj Sankar Bose, N.B. Manik and A.N. Basu, 1999.
 20. Study of photoconductivity of the organic dye polymer based solid state thin film, Dipta Bhanu Ghosh and N.B. Manik 1999.
 21. A comparative study on the speed of response of diode and thermocouple sensor (TC) temperature sensors, Swapan Bhunia, N.B. Manik and A.N. Basu, 1999.
 22. Generation of noise and periodic waveforms by means of computer programming and making

- hardware-software interfacing, Susmita Ghosh, N.B. Manik 1999.
23. Computer based temperature measurement using thermocouple sensors, Manas Kumar Nandy, N.B.Manik 1997, PGDCA, Burdwan.
 24. Electrical and photovoltaic characterizations of Malachite Green dye based solid-state Photo electrochemical cell, Atish Kumar Mukhopadhyay, Dr. N.B. Manik 2008.
 25. Electrical and photovoltaic characterizations of Methylene Blue Dye based solid-state Photo electrochemical cell, Tarun Kumar Kayal, Dr. N.B. Manik 2008.
 26. Study on the photo conductivity on the organic polymer dye based solid state thin film, Rupali Dey, Dr. N.B. Manik 2008
 27. Electrical and photovoltaic characterizations of Rhodamine B dye based solid-state Photo electrochemical cell, sariful Hoque, Dr. N.B. Manik 2008
 28. Electrical and photovoltaic characterizations of Safranin –T dye based solid-state Photo electrochemical cell, Uttam Kumar Basak, Dr. N.B. Manik 2008
 29. Electrical and photovoltaic characterizations of Methyl Violet dye based solid state Photo electrochemical cell And comparison between different concentrations. Pronob Dey, Dr. N.B. Manik, 2009.
 30. Electrical and photovoltaic characterizations of Different Electrode Organic Dye Malachite Green Based Solid – State Photovoltaic effect. Pintu Banerje, Dr. N.B.Manik,2010
 31. Electrical and photovoltaic characterizations of Thionin Dye Based Solid State Photo electrochemical cell And comparison between different concentrations. Aditi Mandal, Dr. N.B.Manik,2010
 32. Study of solvent dependence of Methyl Red (MR) and C₆₀ Based Organic Photovoltaic Device. Sangita Dolai, Dr. N.B.Manik,2010
 33. Generation of slow controlled motion for different mechanical action with the help of stepper motor. Caitali Hansda, Dr. N.B.Manik,2010
 34. Electronic circuit design for controlling the motion of a stepper motor. Santanu Chakraborty, Dr. N.B.Manik,2010
 35. Mechanical assembling of the stepper motor to control motion. Kaustabh Dan, Dr. N.B.Manik,2010
 36. Mechanical assembling of the stepper motor to control motion. Prasenjit Haldar, Dr. N.B.Manik,2011

37. Mechanical assembling of the stepper motor to control motion. Sourav Mandal, Dr. N.B.Manik,2011
38. Mechanical assembling of the stepper motor to control motion. Joynarayan Mukherjee, Dr. N.B.Manik,2011
39. Development of a low cost, low temperature digital diode thermometer. Pabitra Halder, Dr. N.B.Manik,2011
40. Development of a low cost, low temperature digital diode thermometer. Debraj Mandal, Dr. N.B.Manik,2011
41. Effect of different Nanoparticles on Crystal Violet dye based solid state photoelectro chemical cell. Barnali Sarkar, Dr. N.B.Manik,2011
42. Effect of different Nanoparticles on Crystal Violet dye based solid state photoelectro chemical cell. Bijayesree Das , Dr. N.B.Manik,2011
43. Electrical and photovoltaic effect of different size of carbon nano tube in Methyl Red Dye based solid state photochemical cell. Paritosh Chain, Dr. N.B.Manik,2011
44. Electrical and photovoltaic effect of different size of carbon nano tube in Methyl Red Dye based solid state photochemical cell. Ujjal Kumar Pramanik , Dr. N.B.Manik,2011
45. Electrical and photovoltaic Characterizations for different concentrations of Thionine dye based solid state photo electrochemical cell. Sujoy Banerjee, Dr. N.B.Manik,2011
46. Electrical and photovoltaic Characterizations for different concentrations of Thionine dye based solid state photo electrochemical cell. Shib Sankar Manna, Dr. N.B.Manik,2011
47. Electrical and photovoltaic Characterizations for different concentrations of Thionine dye based solid state photo electrochemical cell. Shibabrata Mondal , Dr. N.B.Manik,2011

Our Requirements :

To fulfill our target that has been mentioned in our policy part we need little space. At present we have only 500 sq ft space for our laboratory. We also need space to set up/extend our work shop facility.