Curriculum Vitae of Saikat Biswas

Contents

1 Personal data

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Present Position : Assistant Professor

Present Address :
Centre for Astroparticle Physics & Space Science (CAPSS),
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Nationality : Indian

Date of Birth : 13/09/1980

Sex : Male

Marital status : Married

2 Academic Record

Examination	**Year of passing**	**Subject**	**Board / Univ.**	**Division / Class**
Secondary Examination	1996	Bengali, English, Math, Phy. Sc., Life Sc., History, Geography, Phy. Edu., Work Edu., Biology	West Bengal Board of Secondary Education (Jagacha High School, Howrah, West Bengal, India)	First
Higher Secondary (+2)	1998	Physics, Chemistry, Biology, Mathematics.	West Bengal Council of Higher Secondary Education (Santragachi Kedarnath Institution, Howrah, West Bengal, India)	First
B. Sc.	2001	Physics (Honours) Chemistry & Mathematics (pass)	University of Calcutta. (Shibpur Dinabandhu Institution (College), Howrah, West Bengal, India)	Second
M. Sc.	2004	Physics	University of Calcutta, Kolkata, India	First
Ph.D.	2011	Physics (Experimental)	University of Calcutta. (Variable Energy Cyclotron Centre, Kolkata, India)	

Title of the Ph.D. thesis: Development of high resolution gas filled detector for high energy physics experiments.

Supervisor: Dr. Subhasis Chattopadhyay (Variable Energy Cyclotron Centre)

Ph.D. thesis Submitted on: 20.08.2010

Ph.D. degree obtained on: 04.03.2011

3 Post Doctoral experience

Position	Year	Work	Institute
Visiting Fellow	November, 2010 - November 2012	Development of GEM detector	Detector Laboratory GSI Helmholtzzentrum für Schwerionenforschung GmbH, Planckstrasse 1, D-64291, Darmstadt, Germany
DST-SERB Ramanujan Fellow	November, 2012 - June, 2013	Development of detectors	Variable Energy Cyclotron Centre, Kolkata, India
DST-SERB Ramanujan Fellow and Scientific Officer-D	June 20, 2013 to November 27, 2015	Permanent Scientific staff for Detector development for EHEP	National Institute of Science Education and Research (NISER), Bhubaneswar
Assistant Professor	November 30, 2015 onwards	Permanent Faculty in Physics	Centre for Astroparticle Physics & Space Science (CAPSS), Bose Institute, Kolkata

4 Short term visit to other countries

1. One month visit to Institute of High Energy Physics (IHEP), Beijing, China in June 2007.
To work on bakelite RPC.
2. La Biodala, Isola d'Elba, Italy, May 24-30, 2009.

To present a poster in the conference Frontier Detectors for Frontier Physics (11^{th} Pisa meeting on advanced detectors)

3. GSI, Darmstadt, Germany, February 09-12, 2010.

To present a talk in the X. Workshop on Resistive Plate Chambers and related Detectors- 2010.

4. CERN, Geneva, Switzerland, 16-18 March 2011.

To attend the 4^{th} MC-PAD Training Event, Micro-pattern gas and Photo-detectors.

5. CERN, Geneva, Switzerland, 20 days visit in October 2011.

To participate in the test beam at CERN SPS for GEM detector test for CBM-MUCH detector.

6. La Biodala, Isola d'Elba, Italy, May 20-26, 2012.

To present three posters in the conference Frontier Detectors for Frontier Physics (12^{th} Pisa meeting on advanced detectors)

7. CERN, Geneva, Switzerland, June 13-15, 2012.

To present a talk in the RD51 mini week.

8. CERN, Geneva, Switzerland, 20 days visit in October 2012.

To participate in the test beam at CERN SPS for GEM detector test for CBM-MUCH detector.

9. CERN, Geneva, Switzerland, August 25-September 3, 2013

To attend ALICE mini week and for ALICE related discussion.

10. GSI, Darmstadt, Germany, September 4-13, 2013.

For Discussion and research work on detector.

11. CERN, Geneva, Switzerland, November 18 - December 18, 2014.

To participate in the test beam at CERN PS and CERN SPS for ALICE TPC GEM detector test and to attend RD51 mini week.

12. GSI, Darmstadt, Germany, February 20 - March 4, 2015.

For Discussion and research work on GEM detector for ALICE experiment at CERN and CBM experiment in FAIR.

13. La Biodala, Isola d'Elba, Italy, May 24 - 30, 2015.

To present four posters in the conference Frontier Detectors for Frontier Physics (13^{th} Pisa meeting on advanced detectors)

14. CERN, Geneva, Switzerland, July 11 - August 31, 2015.

To take ALICE DCS shift, to participate in the July Monthly ALICE meeting week 13-17 July, 2015.

15. GSI, Darmstadt, Germany, April 3-19, 2016.

For research work on GEM detector for ALICE TPC upgrade, to present the work in the GSI TPCU meeting, to attend CBM collaboration meeting.

16. CERN, Geneva, Switzerland, April 20-29, 2016

To take ALICE DCS shift. Presented the GEM detector related work on TPCU production meeting.

17. GSI, Darmstadt, Germany, September 12-23, 2016.

Worked on the testing of the first quad-GEM prototype build in India with high rate X-ray generator. He operated the GEM chamber at very low gain. Also participated

in the pre-production of large GEM detector for ALICE-TPC upgrade.
18. CERN, Geneva, Switzerland, November 24- December 6, 2016
To take DCS data taking shift during heavy ion run of ALICE experiment. Participated also in the testing of OROC chamber of ALICE TPC with heavy ion at Point 2 (ALICE site).
19. Budker Institute of Nuclear Physics, and Novosibirsk State University, Novosibirsk, Russia 27 February - 3 March, 2017.
To present an oral and two posters in the conference INSTR17: International Conference "Instrumentation for Colliding Beam Physics"
20. CERN, Geneva, Switzerland, May 5 - May 18, 2017
To take DCS data taking shift of ALICE experiment.

5 Scholarships

1. National Scholarship in Higher Secondary Examination from West Bengal in 1998.
2. DAE research fellowship to pursue Ph.D in Physics.
3. DST International travel grant to attend the 11^{th} Pisa Meeting on Advanced Detectors, held from 24/05/2009 to 30/05/2009 at La Biodola, Isola d'Elba, Italy.
4. Support from the Organizing committee to attend the 11^{th} Pisa Meeting on Advanced Detectors, held from 24/05/2009 to 30/05/2009 at La Biodola, Isola d'Elba, Italy.
5. Support from the Organizing committee to attend the X. Workshop on Resistive Plate Chambers and related Detectors- 2010, GSI, Germany.
6. EU grants to participate the 4^{th} MC-PAD Training Event, Micro-pattern gas and Photo-detectors, CERN, Geneva, Switzerland, 16-18 March 2011.
7. Support from the Organizing committee to attend the 12^{th} Pisa Meeting on Advanced Detectors, held from 20/05/2012 to 26/05/2012 at La Biodola, Isola d'Elba, Italy.
8. DST-SERB Ramanujan Fellowship, November, 2012 to November, 2017.
9. Support from the Organizing committee to attend the 13^{th} Pisa Meeting on Advanced Detectors, held from 24/05/2015 to 30/05/2015 at La Biodola, Isola d'Elba, Italy.

6 Projects

1. Investigation of the Applicability of Micro-pattern Gas Detectors in the High Rate FAIR-Experiment CBM. Ramanujan Fellowship, Novem-

ber, 2012 to November, 2017. (PI).
2. Beam Energy Scan Program with Relativistic Heavy Ion Collisions and Development of a Gas based Detector facility at NISER. 2014. (Co-PI).

7 Students

1. Viwek Mertiya (University of Rajasthan), M.Tech in Engineering Physics Project thesis. 2012-13
Title: Development of resistive plate chamber for physics research.
(Project is done at VECC).
2. Rashmita Das (F.M. University Balasore , Odisha), One month project on development of multigap RPC at VECC. 2013
(Project is done at VECC).
3. Himangshu Neog, SPS, NISER, 6 months. 2013-14
Title: Development of Resistive Plate Chamber (RPC).
(Project is done at NISER).
4. Akhilesh P Nandan, IISER TVM, 1 month. 2014
Title: Detection of particles and gamma photons using plastic scintillators.
(Project is done at NISER).
5. Sharmili Rudra, Dept. of Applied Physics, University of Calcutta, 3 months. 2014
Title: Development of detectors for high energy physics experiments.
(Project is done at NISER).
6. Amit Nanda, SPS, NISER, 6 months. 2014-15
Title: Study of characteristics of GEM Detector.
(Project is done at NISER).
7. Sumanya Sekhar Sahoo, SPS, NISER, 1 month, (Open ended experiment). 2015
Title: Building and testing of a single wire gas chamber.
(Project is done at NISER).
8. Abhishek Nag, IISER Kolkata, 1 month. 2015
Title: Measurement of relative gain uniformity of a single mask triple GEM detector.
(Project is done at NISER).
9. Akhil Bharadwaj, IISER Mohali, 2 month. 2015
Title: Characterization of a single wire gas chamber with Argon and CO2 in 80/20 ratio.
(Project is done at NISER).
10. Khitish Biswal, SPS, NISER, summer project, 2015
Title: Efficiency measurement of a triple GEM detector using cosmic ray.
(Project is done at NISER).

11. Ruchika Gupta, Kurukhetra University, Kurukhetra, summer project, 2015
Title: Long-term stability test of a triple GEM detector with Argon and CO2 in 80/20 ratio.
(Project is done at NISER).
12. Aritra Mondal, University of Calcutta, Kolkata, 2016
Title: Long-term stability test of GEM detector for ALICE experiment.
(Project is done at Bose Institute).
13. Debdeep Ghosal, Indian School of Mines, Dhanbad, 2016
Title: Development of gas detector.
(Project is done at Bose Institute).
14. Shreya Roy, Bose Institute, Kolkata, 2016
Title: Development of straw tube detector.
(Project is done at Bose Institute).
15. Pratik Ghosal, Bose Institute, Kolkata, 2016
Title: Radiation detection.
(Project is done at Bose Institute).

8 Research Experience

I have completed my M.Sc. from the University of Calcutta, Kolkata in 2004 in Physics with Nuclear Structure and Nuclear Reaction as special paper.

I have joined VECC, Kolkata as a Junior Research Fellow (JRF) on September 2005 and completed my Ph.D work in Experimental High Energy Physics with Dr. Subhasis Chattopadhyay.

I have worked from September, 2005 to August, 2010 on the development of bakelite based Resistive Plate Chamber (RPC) to be used as the prime active detector for the detection of muons (produced through the interaction of neutrinos) in a 50 kton magnetized Iron Calorimeter (ICAL) in the India-based Neutrino Observatory (INO). This proposed experiment will study the neutrino oscillations in detail using atmospheric neutrinos. INO will need a large number of RPCs each of 2m $\times$ 2m dimension. The main aim of our work is to develop RPCs from the bakelite paper laminates produced and commercially available in local market in India and to operate those modules in streamer mode. This will reduce the cost of the detector immensely.

Over the last several years, I have developed a facility from scratch where RPCs of varying sizes (starting from 30cm $\times$ 30cm to 1m $\times$ 1m) have been fabricated and tested with cosmic rays. A thin silicone coating has been applied to the inner surfaces of the detectors to make the surface smoother. With the application of viscous silicone fluid the efficiency of the RPCs have been found to be >90% with a counting rate $\sim$ 0.1 Hz/cm^2 for more than 140 days in streamer mode using argon, tetrafluroethane (R-134a) and isobutane in 34:59:7 mixing ratio with cosmic rays.

The time resolution (FWHM) obtained is $\sim$ 2 nsec which is better than the required value in INO. The streamer-mode of operation of these RPCs makes the electronics simpler.

In this R&D work I was deeply engaged from the procurement of bakelite sheets from the local market and evolved through several modifications in the fabrication and surface finish.

I have also worked to build a INO-ICAL prototype ($\sim$ 25 ton iron) at VECC. The prototype is built with 13 layers of 50 mm thick low carbon iron (Tata A-grade) plates and 12 RPCs (both bakelite and glass) of 1m $\times$ 1m in area sandwiched between them. Each layer is assembled by joining a 'T' and a 'C' shaped iron plate. The prototype detector will be magnetised to 1.5 Tesla, which will enable momentum measurement of 1-10 GeV atmospheric muons. To magnetise the iron four sets of copper coils of 5 turns each, which were made from electrolytic copper conductor tubing having a central bore for flowing low conductivity water, are used. The prototype will provide an active volume of about $1m^3$. A few 1m $\times$ 1m RPC detectors are now installed inside a prototype magnet for testing.

I have also worked on building and characterizing of Multi-Gap RPC (MRPC) from the bakelite and glass in VECC India. MRPC will be used in medical imaging for its good time resolution.

I joined GSI detector laboratory, Germany on November 11, 2010 as a visiting scientist after submission of my Ph.D thesis to the University of Calcutta, Kolkata. In GSI detector laboratory a facility has been developed for the fabrication and study of the characteristics for the GEM for the future Compressed Baryonic Matter (CBM) experiment at Facility of Anti-Proton and Ion Research (FAIR) in Darmstadt, Germany. Several triple double mask GEM detectors have been studied systematically. The variation of gain, resolution of the detector with that of the applied high voltage has been measured with Fe^{55} X-ray source for different gas mixtures and with different gas flow rates etc. The fraction of large signal (probable spark) relative to average signal is also measured.

I have actively participated in two test beams at CERN-SPS in October 2011 and October 2012 for testing GEM detectors for CBM. Both double mask and single mask triple GEM detectors have been tested at high rate at CERN SPS/H4. In these tests the hadronic shower detection by GEM, the spark probability due to $\sim$150 GeV Pion beam has been measured.

I am also actively involved in ageing studies of the influence of construction materials on the performance of gaseous detectors using multi wire proportional chambers (MWPC).

I joined VECC once again as DST-SERB Ramanujan Fellow on 12^{th} November 2012. The research proposal "Investigation of the Applicability of Micro-pattern Gas Detectors in the High Rate FAIR-Experiment CBM" proposed here addresses the feasibility study and applicability of Gas Electron Multipliers (GEMs) in a harsh environment. The study is very essential from the point of view of the design and construction of the muon chambers (MUCH) for the CBM experiment at FAIR. For

the MUCH system large-area GEMs have been chosen as the active detector, at least for the first few stations downstream of the first hadron absorber. They will be exposed to a very harsh radiation environment. The CBM experiment will have a run time of at least 10 years. The study of long-term stability and ageing properties of GEMs is therefore very important.

In VECC, data analysis of ageing studies performed at GSI is done for GEM. The ageing study and the long term test of one triple GEM detector with 3 mm drift gap, 2 mm transfer gap and 2 mm induction gap has been performed systematically. The accumulated charge on the detector is calculated from the rate of the X-ray and the average gain of the detector. No sign of ageing is observed after accumulation of more that 0.04 mC/mm^2. The results are included in the TDR (in progress) of CBM-MuCh.

Development of Multigap Resistive Plate Chamber (MRPC) is performed for STAR experiment at VECC. An efficiency $\sim$ 85% is achieved at an electric field of 100 kV/cm with a noise rate of <1 Hz/cm^2. Five large modules are already sent to BNL, USA for installation.

Performance of a 6-gap glass MRPC has been studied by 511 keV annihilation gamma rays from a Na^{22} source for medical imaging. The area of the MRPC is 16 cm $\times$ 10 cm with 6 gap each of 200 μm. The thickness of each glass is 600 μm. The MRPC is tests in the avalanche mode with a gas mixture of R-134a and Isobutane in 95/5 ratio by using a finger plastic scintillator of dimension 5 cm $\times$ 1.2 cm. The Na^{22} source is placed between the plastic scintillator and the MRPC. The coincidence is taken between the signals from the scintillator and the MRPC with and without the Na^{22} source. The coincidence count rate increases with the applied high voltage and the effect of the source is also clear. To locate the position of the source, measuring the time difference is the main goal of using MRPC in medical imaging. It has been observed that varying the source position the time difference of signals from the trigger (Scintillator) and the MRPC is changing. This is the biggest achievement of our MRPC development for medical imaging.

The coincidence count of the signals from the MRPC and the scintillator and the singles count of the scintillator are measured with and without the Na^{22} source. The ratio of the coincidence count and the singles scintillator counts, calculated from the data only for the 511 keV gamma ray, is defined as the efficiency. An efficiency $\sim$ 0.9% is obtained at around 15 kV.

Resistive Plate Chambers (RPC) of area 2 m $\times$ 2 m will be used in the proposed India-based Neutrino Observatory (INO) to determine precisely the oscillation parameters using atmospheric neutrinos in a 50 kton Iron Calorimeter (ICAL). During the last few years R&D on the RPC with bakelite paper laminates commercially available in India is going on at SINP/VECC. Since the bakelite sheets of size 2 m $\times$ 2 m are unavailable in Indian market, therefore it becomes necessary to make a 2 m $\times$ 2 m bakelite sheet by joining four 1 m $\times$ 1 m bakelite plates. Hence a prototype single-gap bakelite RPC of size 20 cm $\times$ 20 cm has been fabricated with electrode plates made by gluing eight 10 cm $\times$ 10 cm bakelite plates together

to examine the feasibility of the option of planar electrodes made of glued plates. The I-V characteristic studied in the initial testing is found to be satisfactory. Two distinct slopes in the I-V plot have been obtained. Thus this RPC is expected to work adequately and further testing is therefore needed to examine its performance such as efficiency, area coverage or dead area determination, etc.

At NISER I joined as a Scientific Officer on June 20, 2013. At NISER I have established a detector laboratory where building and testing of gaseous detectors such as GEM, RPC and plastic scintillator detectors have been started satisfactorily. This work is for ALICE TPC upgrade. Long-term stability test of a 10 cm $\times$ 10 cm single mask triple GEM is going on using Sr^{90} beta source. The GEM detector is built in this laboratory with drift gap, two transfer gap and induction gap as 3, 2, 2, 2 mm respectively. No ageing is observed after accumulation of more that 0.02 mC/cm^2.

A Data logger to monitor and record the ambient parameters such as temperature, relative humidity and pressure has been developed. With this Data logger continuous recording of t, p, RH and time stamp can be done with a programmable sampling interval. This data is necessary to correct the gain of a gas filled detector.

Cosmic ray muon pulse height spectrum has been obtained for two scintillators and fitted with Landau distribution. The most probable energy deposition in 1 cm thick plastic material has been found to be $\sim$1.4 MeV. The average velocity of the cosmic ray muons has been found to be $(2.53 \pm 0.25) \times 10^8$ m/s. In old literature the quoted value is $(2.978 \pm 0.007) \times 10^8$ m/s. To improve the results two ways may be proposed; the first is to increase the statistics i.e. registering more coincidence events and the second is to measure the time difference using time to digital converter (TDC). Both the processes are in our future plan. One RPC module is fabricated using bakelite electrode from the local market. The uniformity of surface resistivity is measured.

I joined Bose Institute, Kolkata as a faculty in Physics department and CAPSS on November 30, 2015. Here also I started building a gas detector laboratory for Experimental High Energy Physics. I am mainly involved in TPC upgrade for ALICE experiment at CERN and CBM-Muon Chamber.

In view of the currently ongoing exploration of ALICE-TPC upgrade options with regard to future operation at 50 kHz interaction rate in Pb-Pb collisions, we are very much interested in operating the TPC in an un-gated mode. After the last visit of CERN and GSI and after discussing with me it has been brought to attention of ALICE-TPC Project Leader that I have substantial expertise on the relevant technologies to find a possible solution to this end. Therefore, the ALICE-TPC project would expressly welcome India, investigating technical solutions for the ALICE-TPC upgrade. Such efforts may imply the studies of triple and quadruple GEM prototypes in laboratory and detailed simulation studies (by other Indian collaborators) to further optimise the operational point of this detector. ALICE-TPC Project Leader has given our experience, a major role of Indian groups in the testing and commissioning of the new TPC readout chambers.

At Bose Institute I am involved in the long-term stability test of the triple GEM detector. We have recently built one 4-GEM detector using single mask GEM foils in collaboration with IOP, Bhubaneswar. We are regularly presenting the test results in the online TPC upgrade meeting at CERN.

9 List of Research Publications

9.1 Journal

1. Performances of linseed oil-free bakelite RPC prototypes with cosmic ray muons.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, M.K. Sharan, Y.P. Viyogi.
Nuclear Instruments and Methods in Physics Research A 602 (2009) 749-753. [**arXiv:0907.2976**]

2. Control system for a four-component gas mixing unit.
S. Bose, **S. Biswas**, S. Saha, M.K. Sharan, S. Bhattacharya.
Nuclear Instruments and Methods in Physics Research A 602 (2009) 839-841.

3. INO prototype detector and data acquisition system.
Anita Behere, M.S. Bhatia, V.B. Chandratre, V.M. Datar, P.K. Mukhopadhyay, Satyajit Jena, Y.P. Viyogi, Sudeb Bhattacharya, Satyajit Saha, Sarika Bhide, S.D. Kalmani, N.K. Mondal, P. Nagraj, B.K. Nagesh, Shobha K. Rao, L.V. Reddy, M. Saraf, B. Satyanarayana, R.R. Shinde, S.S. Upadhya, P. Verma, **Saikat Biswas**, Subhasish Chattopadhyay, P.R. Sarma.
Nuclear Instruments and Methods in Physics Research A 602 (2009) 784-787.

4. Development of linseed oil-free Bakelite Resistive Plate Chambers.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Nuclear Instruments and Methods in Physics Research A 604 (2009) 310-313. [**arXiv:0907.2978**]

5. Study of timing properties of single gap high-resistive bakelite RPC.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Nuclear Instruments and Methods in Physics Research A 617 (2010) 138-140. [**arXiv:0907.2982**]

6. Performances of silicone coated high resistive bakelite RPC.
S. Biswas, Purba Bhattacharya, S. Bhattacharya, S. Bose, S. Chattopadhyay, N. Majumdar, S. Mukhopadhyay, S. Saha, Y.P. Viyogi.

Nuclear Instruments and Methods in Physics Research A 661 (2012) S94-S97. [**arXiv:1206.5627**]

7. Study of the influence of construction materials on the ageing properties of high rate gas detectors.
Alhussain Abuhoza, **S. Biswas**, U. Frankenfeld, J. Hehner, C. J. Schmidt, H.R. Schmidt.
Physics Procedia 37 (2012) 442-447.

8. Surface resistivity measurements and related performance studies of the Bakelite RPC detectors.
Meghna K. K., A. Banerjee, **S. Biswas**, S. Bhattacharya, S. Bose, S. Chattopadhyay, G. Das, C. Marick, S. Saha, Y.P. Viyogi.
Proceedings of Science , PoS(RPC2012)031.

9. Study on Surface Asperities in Bakelite-RPC.
N. Majumdar, S. Mukhopadhyay, P. Bhattacharya, **S. Biswas**, S. Bhattacharya, S. Saha, S. Chattopadhyay.
Proceedings of Science , PoS(RPC2012)026.

10. Study of the characteristics of GEM detectors for the future FAIR experiment CBM.
S. Biswas, A. Abuhoza, U. Frankenfeld, J. Hehner, C. J. Schmidt, H.R. Schmidt, M. Träger, S. Colafranceschi, A. Marinov, and A. Sharma.
Nuclear Instruments and Methods in Physics Research A 718 (2013) 403-405. [**arXiv:1408.0075**]

11. Setup optimization toward accurate ageing studies of gas filled detectors.
A. Abuhoza, H.R. Schmidt, **S. Biswas**, U. Frankenfeld, J. Hehner, C. J. Schmidt.
Nuclear Instruments and Methods in Physics Research A 718 (2013) 400-402.

12. Development of Multi-gap Resistive Plate Chamber (MRPC) for medical imaging.
A. Banerjee, A. Roy, **S. Biswas**, S. Chattopadhyay, G. Das, S. Pal.
Nuclear Instruments and Methods in Physics Research A 718 (2013) 138-139. [**arXiv:1408.0280**]

13. Measurement of electrical properties of electrode materials for the bakelite Resistive Plate Chambers.
Meghna K. K., A. Banerjee, **S. Biswas**, S. Bhattacharya, S. Bose, S. Chattopadhyay, G. Das, C. Marick, S. Saha, Y.P. Viyogi.

2012 JINST 7 P10003 doi:10.1088/1748-0221/7/10/P10003. [**arXiv:1206.5894**]

14. A numerical study on surface asperities in bakelite-RPC.
N. Majumdar, S. Mukhopadhyay, P. Bhattacharya, **S. Biswas**, S. Bhattacharya, S. Saha, S. Chattopadhyay.
2012 JINST 7 P11027 doi:10.1088/1748-0221/7/11/T11027.

15. Development of a GEM based detector for the CBM Muon Chamber (MUCH).
S. Biswas, D. J. Schmidt, A. Abuhoza, U. Frankenfeld, C. Garabatos, J. Hehner, V. Kleipa, T. Morhardt, C. J. Schmidt, H. R. Schmidt, and J.Wiechula.
2013 JINST 8 C12002 doi:10.1088/1748-0221/8/12/C12002. [**arXiv:1310.0642**]

16. Testing of triple-GEM chambers for CBM experiment at FAIR using self-triggered readout electronics.
A.K. Dubey, S. Chattopadhyay, J. Saini, R. Singaraju, G.S.N. Murthy, Y.P. Viyogi, A. Abuhoza, **S. Biswas**, U. Frankenfeld, J. Hehner, V. Kleipa, Th. Morhardt, C.J. Schmidt, D.J. Schmidt, A. Lymanets, H.R. Schmidt.
Nuclear Instruments and Methods in Physics Research A 755 (2014) 62-68.

17. Calibration and performance of the STAR Muon Telescope Detector using cosmic rays.
C. Yang, X.J. Huang, C.M. Du, B.C. Huang, Z. Ahammed, A. Banerjee, P. Bhattarari, **S. Biswas**, B. Bowen, J. Butterworth, M. Calderón de la Barca Sánchez, H. Carson, S. Chattopadhyay, D. Cebra, H.F. Chen, J.P. Cheng, M. Codrington, G. Eppley, C. Flores, F. Geurts, G.W. Hoffmann, A. Jentsch, A. Kesich, C. Li, Y.J. Li, W.J. Llope, S. Mioduszewski, Y. Mohamed, T. Nussbaum, A. Roy, L. Ruan, J.J. Schambach,Y.J. Sun, Y. Wang, K. Xin, Z. Xu, S. Yang, X.L. Zhu.
Nuclear Instruments and Methods in Physics Research A 762 (2014) 1-6.

18. Performance simulation of a MRPC-based PET imaging system.
A. Roy, A. Banerjee, **S. Biswas**, S. Chattopadhyay, G. Das, S. Saha.
2014 JINST 9 C10030 doi:10.1088/1748-0221/9/10/C10030.

19. Measurement of the spark probability of a GEM detector for the CBM muon chamber (MuCh).
S. Biswas, A. Abuhoza, U. Frankenfeld, C. Garabatos, J. Hehner, V. Kleipa, T. Morhardt, C. J. Schmidt, H. R. Schmidt, and J.Wiechula.
Nuclear Instruments and Methods in Physics Research A 800 (2015) 93-97.

20. A simple technique for gamma ray and cosmic ray spectroscopy

using plastic scintillator.
Akhilesh P. Nandan, Sharmili Rudra, Himangshu Neog, **S. Biswas**, S. Mahapatra, B. Mohanty, P.K. Samal.
Nuclear Instruments and Methods in Physics Research A 824 (2016) 606 - 608. [**arXiv:1407.7181**]

21. Building and commissioning of a setup to study ageing phenomena in gaseous detectors.
A. Abuhoza, H.R. Schmidt, **S. Biswas**, U. Frankenfeld, J. Hehner, C.J. Schmidt.
Nuclear Instruments and Methods in Physics Research A 824 (2016) 487 - 489.

22. Characterisations of GEM detector prototype.
Rajendra Nath Patra, Amit Nanda, Sharmili Rudra, P. Bhattacharya, Sumanya Sekhar Sahoo, **S. Biswas**, B. Mohanty, T.K. Nayak, P.K. Sahu, S. Sahu.
Nuclear Instruments and Methods in Physics Research A 824 (2016) 501 - 503. [**arXiv:1505.07768**]

23. Systematic measurements of the gain and the energy resolution of single and double mask GEM detectors .
S. Biswas, D. J. Schmidt, A. Abuhoza, U. Frankenfeld, C. Garabatos, J. Hehner, V. Kleipa, T. Morhardt, C. J. Schmidt, H. R. Schmidt, and J.Wiechula.
Nuclear Instruments and Methods in Physics Research A 824 (2016) 504 - 506. [**arXiv:1505.07767**]

24. Effects of variation of environmental parameters on the performance of Resistive Plate Chamber detectors.
K.K. Meghna, **S. Biswas**, A. Jash, S. Chattopadhyay, S. Saha.
Nuclear Instruments and Methods in Physics Research A 816 (2016) 1-8.

25. Long-term stability test of a triple GEM detector.
R.P. Adak, **S. Biswas**, S. Das, D. Ghosal, S.K. Ghosh, A. Mondal, D. Nag, T.K. Nayak, R.N. Patra, S. K Prasad, S. Raha, P.K. Sahu, S. Sahu and S. Swain.
2016 JINST 11 T10001 doi:10.1088/1748-0221/11/10/T10001.
[**arXiv:1608.00562**]

9.2 National Conference Proceedings

1. Study of bakelite-based RPC detector performance with cosmic ray muons.
Saikat Biswas, S. Bhattacharya, S. Chattopadhyay, S. Saha, M.K. Sharan, Y.P. Viyogi.

Proceedings of the XVII DAE-BRNS High Energy Physics Symposium. December 2006, 335-338.

2. Development of Resistive Plate Chamber using Bakelite.
S. Biswas, S. Bhattacharya, S. Chattopadhyay, S. Saha, M.K. Sharan, Y.P. Viyogi.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 52, (2007), 593-594.

3. Resistive Plate Chamber for Neutrino Oscillation Experiment.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Proceedings of the National seminar on New Era in Nuclear and Particle Physics. (To be published) November 2008.

4. RPC with high-resistive Indian-bakelite electrodes for low-rate operation.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Proceedings of the XVIII DAE-BRNS High Energy Physics Symposium. Volume 18, (2008),289-291.

5. Development of silicone coated bakelite RPC.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 53, (2008), 687-688.

6. Time resolution measurement of silicone coated bakelite Resistive Plate Chamber.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Proceedings of the International Symposium on Nuclear Physics. Volume 54, (2009), 660-661.

7. Development of multigap RPC.
A. Banerjee, A. M. Ghosh, **S. Biswas**, S. Bhattacharya, S. Bose, S. Chattopadhyay, M. R. Dutta Majumdar, S. Saha, Y.P. Viyogi.
Proceedings of the International Symposium on Nuclear Physics. Volume 54, (2009), 662-663.

8. Development of 1m $\times$ 1m bakelite Resistive Plate Chamber for INO-ICAL prototype.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
Proceedings of the National Symposium on Nuclear Instrumentation. BARC, Mumbai, (2010), 269-272.

9. Development of high resolution gas filled detector for high energy

physics experiments.
Saikat Biswas.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 55, (2010), 824-825.

10. Development of glass multigap RPC for PET imaging.
A. Banerjee, **S. Biswas**, S. Chattopadhyay, G. Das, M. R. Dutta Majumdar, S. Saha, Y.P. Viyogi.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 55, (2010), 672-673.

11. New development and surface characterization of bakelite-based Resistive Plate Chamber.
Meghna K. K., **S. Biswas**, S. Bhattacharya, S. Bose, S. Chattopadhyay, G. Das, C. Marick, Y.P. Viyogi, and S. Saha.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 56, (2011), 1154-1155.

12. Study of the characteristics of Gas Electron Multipliers for the FAIR experiment CBM.
S. Biswas, A. Abuhoza, U. Frankenfeld, J. Hehner, C. J. Schmidt, H.R. Schmidt, M. Träger, S. Colafranceschi, A. Marinov, and A. Sharma.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 56, (2011), 1068-1069.

13. Development of RPC using glued bakelite sheets.
Viwek Mertiya, Rajesh Ganai, **S. Biswas**, S. Chattopadhyay, G. Das, C. Marick, S. Saha, and Y. P. Viyogi.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 58, (2013), 922-923.

14. Cosmic ray spectroscopy using plastic scintillator detector.
Sharmili Rudra, Akhilesh P. Nandan, Himangshu Neog, **S. Biswas**, S. Mahapatra, B. Mohanty, and P. K. Samal.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 59, (2014), 870-871

15. Fabrication of Resistive Plate Chamber using Bakelite.
Himangshu Neog, Sharmili Rudra, M. R. Bhuyan, **S. Biswas**, B. Mohanty, Rudranarayan Mohanty, P. K. Sahu, and S. Sahu.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 59, (2014), 874-875

16. Development of Data logger for atmospheric pressure, temperature and relative humidity for gas-filled detector.
S. Sahu, M. R. Bhuyan, **S. Biswas**, B. Mohanty, and P. K. Sahu.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 59, (2014), 876-877

17. Detection of Gamma rays with Multigap Resistive Plate Chamber.
A. Roy, A. Banerjee, **S. Biswas**, S. Chattopadhyay, G. Das, S. Saha.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 59, (2014), 946-947.

18. Discharge probability measurement of the GEM detector for the CBM Muon Chamber.
S. Biswas, A. Abuhoza, U. Frankenfeld, C. Garabatos, J. Hehner, V. Kleipa, T. Morhardt, C. J. Schmidt, H. R. Schmidt, and J.Wiechula.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 60, (2015), 910-911.

19. Studies of characteristics of triple GEM detector for the ALICE-TPC upgrade.
Rajendra Nath Patra, R. N. Singaraju, Z. Ahammed, **S. Biswas**, T. K. Nayak.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 60, (2015), 934-935.

20. Development of a 4-channel TTL scaler for detector signal counting.
S. Sahu, P. Bhattacharya, **S. Biswas**, B. Mohanty, and P. K. Sahu.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 60, (2015), 958-959.

21. Development of triple GEM detector for a heavy ion physics experiment.
A. Bhardwaj, K. Biswal, R. Gupta, A. Nag, A. Nanda, R. N. Patra, S. Rudra, S. S. Sahoo, P. Bhattacharya, **S. Biswas**, B. Mohanty, T. K. Nayak, P. K. Sahu, and S. Sahu.
Proceedings of the DAE Symposium on Nuclear Physics. Volume 60, (2015), 962-963.

22. Design and fabrication of a MHz scaler module.
D. Nag, **S. Biswas**, and S. Das.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 982-983.

23. Building of a 4-GEM prototype for ALICE-TPC upgrade.
S. Swain, R. P. Adak, **S. Biswas**, R. N. Patra, S. Rudra, P. K. Sahu, and S. Sahu.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 994-995.

24. R&D on Straw Tube detector for CBM Muon Chamber.
R. P. Adak, **S. Biswas**, S. Chattopadhyay, S. Das, D. Ghosal, P. Ghosal, A. Mondal, D. Nag, S. Roy, and J. Saini.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 996-997.

25. Stability test of the GEM detector.
R. P. Adak, **S. Biswas**, S. Das, D. Ghosal, S. K. Ghosh, A. Mondal, D. Nag, T. K. Nayak, R. N. Patra, S. K Prasad, S. Raha, P. K. Sahu, S. Sahu, and S. Swain.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 998-999.

26. Building of Gas Flow Monitor for GEM Detector.
S. Sahu, P. K. Sahu, S. Swain, and **S. Biswas**.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 1002-1003.

27. Characteristics of triple GEM detector for the ALICE TPC upgrade at CERN.
Rajendra Nath Patra, R. N. Singaraju, **S. Biswas**, Z. Ahammed, T. K. Nayak, Y. P. Viyogi.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 1050-1051.

28. Study of a Multiwire Proportional Chambers (MWPC) detector using NIM and MANAS based electronics.
Rajendra Nath Patra, R.N. Singaraju, T. K. Ghosh, **S. Biswas**, T. K. Nayak, Y.P. Viyogi.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 1052-1053.

29. Design and fabrication of a water based cooling system for the CBM Muon Chamber.
D. Nag, A. Kumar, **S. Biswas**, S. Chattopadhyay, S. Das, A. K. Dubey, C. Ghosh, S. K. Prasad, and J. Saini.
Proceedings of the DAE-BRNS Symposium on Nuclear Physics. Volume 61, (2016), 1096-1097.

9.3 Preprint

1. Development of bakelite based Resistive Plate Chambers.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, M.K. Sharan, Y.P. Viyogi.
[**arXiv:0802.2766v1**]

9.4 Internal notes

1. Study of the characteristics of GEM for the FAIR experiment CBM.
S. Biswas, A. Abuhoza, U. Frankenfeld, J. Hehner, C. J. Schmidt, H.R. Schmidt, M. Träger, S. Colafranceschi, A. Marinov, and A. Sharma.
CBM Progress Report 2011, 44.

2. Optimization of a setup for ageing studies of gaseous detectors.
Alhussain Abuhoza, H.R. Schmidt, **S. Biswas**, U. Frankenfeld, J. Hehner, C. J. Schmidt.
CBM Progress Report 2011, 52.

3. Ageing studies of GEM foils for the CBM-MUCH detector.
S. Biswas, D. J. Schmidt, A. Abuhoza, U. Frankenfeld, C. Garabatos, J. Hehner, V. Kleipa, T. Morhardt, C. J. Schmidt, H. R. Schmidt, and J.Wiechula.
CBM Progress Report 2012, 49.

4. Design and fabrication of a data logger for atmospheric pressure, temperature and relative humidity for gas-filled detector development.
S. Sahu, M. R. Bhuyan, Sharmili Rudra, **S. Biswas**, B. Mohanty, P. K. Sahu.
RD51-NOTE-2015-004, [arXiv:1507.03575v1].

5. Building of a 4-channel TTL scaler for counting detector signals.
S. Sahu, R. P. Adak, S. Biswas, T. Mishra, D. Nag, R.N. Patra, **S. Rudra**, P. K. Sahu, S. Swain.
RD51-NOTE-2016-003, [arXiv:1608.00563].

9.5 Book Chapter

1. Chapter 81: Building of a Bakelite Resistive Plate Chamber Prototype.

Himangshu Neog, Sharmili Rudra, M. R. Bhuyan, **S. Biswas**, B. Mohanty, Rudranarayan Mohanty, P. K. Sahu, and S. Sahu.
Proceedings of the XXI DAE-BRNS High Energy Physics Symposium, Springer Proceedings in Physics 174, DOI 10.1007/978-3-319-25619-1-81, Springer International Publishing Switzerland 2016.

10 Conferences & Schools Attended

1. DAE-BRNS International Workshop on Large Scale Computing, VECC, India, February 8-10, 2006.
2. SERC School on Nuclear dynamics at low and medium energies and nuclear structure, VECC, India, March 13- April 2, 2006.
3. INO School at HRI, Allahabad and SINP/VECC, Kolkata, India, April-May 2006.
4. XVII DAE-BRNS High Energy Physics Symposium, IIT, Kharagpur, India, December 11-15, 2006.
5. 21st International Workshop on Weak interactions and Neutrinos, SINP, India, January 15-20, 2007.
6. DAE Symposium on Nuclear Physics at Sambalpur University, Burla, Smabalpur , India, December 11-15, 2007.
7. 20^{th} International Conference on Ultra Relativistic Nucleus Nucleus Collisions, Quark Matter 2008, Jaipur, India, February 4 âĂŞ 10, 2008.
8. IX International Workshop on Resistive Plate Chamber and related Detectors-2007, TIFR, Mumbai, India, February 13-16, 2008.
9. NENPP-08, University of Burdwan, India, November 28-29, 2008.
10. XVIII DAE-BRNS High Energy Physics Symposium, BHU Varanasi, India, December 14-18, 2008.
11. DAE Symposium on Nuclear Physics at IIT Roorkee, India, December 22-26, 2008.
12. Frontier Detectors for Frontier Physics (11^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2009.
13. International Symposium on Nuclear Physics. BARC, Mumbai, India, December 8-12, 2009.
14. X. Workshop on Resistive Plate Chambers and related Detectors-2010, GSI, Darmstadt, Germany, February 09-12, 2010.
15. DAE-BRNS Theme Meeting on Advanced Detectors for Imaging in Physics and Medical Diagnosis, VECC, Kolkata, India, March 4-5, 2010.
16. Workshop "The muon detection system of the Compressed Baryonic Matter Experiment at FAIR", GSI, Darmstadt, Germany, January 19-21, 2011.
17. 4^{th} MC-PAD Training Event, Micro-pattern gas and Photo-detectors,

CERN, Geneva, Switzerland, 16-18 March, 2011.
18. 19^{th} CBM Collaboration meeting, GSI, Darmstadt, Germany, March 26-30, 2012.
19. Frontier Detectors for Frontier Physics (12^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 20-26, 2012.
20. RD51 mini week , CERN, Switzerland, June 13-15, 2012.
21. 20^{th} CBM Collaboration meeting, VECC, Kolkata, India, September 24-28, 2012.
22. 100^{th} Indian Science Congress, Kolkata, Calcutta University, Kolkata, India, 3-7 January 2013.
23. INO Collaboration Meeting, BARC, Mumbai, 5- 7 March 2013.
24. STAR regional meeting and discussion on phases of QCD, NISER, Bhubaneswar, India, July 8-10, 2013.
25. Second Conclave of DST-Ramanujan Fellows, December 13-14, 2013, Pune.
26. IWAD and 14^{th} RD51 Collaboration Meeting, 27-31 October, 2014, VECC, Kolkata.
27. RD51 mini week , CERN, Switzerland, December 08-11, 2014.
28. 7^{th} International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2015), 2-6 February, 2015, VECC, Kolkata, India.
29. Frontier Detectors for Frontier Physics (13^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2015.
30. CBM-Electronics workshop: 11-12 January 2016, BI-Darjeeling.
31. FAIR Detector Workshop: 19-20 February 2016, Puri, Odisha.
32. 27^{th} CBM Collaboration meeting, GSI, Darmstadt, Germany, April 11-15, 2016.
33. National Conference on "Advanced Detectors for Nuclear, High Energy and Astroparticle Physics", 15-17 February 2017, Bose Institute, Kolkata, India.
34. INSTR17: International Conference "Instrumentation for Colliding Beam Physics", Budker Institute of Nuclear Physics, and Novosibirsk State University, Novosibirsk, Russia 27 February - 3 March, 2017

11 Talks Given

1. XVII DAE-BRNS High Energy Physics Symposium, IIT Kharagapur, India, December 11-15, 2006.
Title: Study of bakelite-based RPC detector performance with cosmic ray muons.
2. INO collaboration meeting, DU, Delhi, India, March 9-10, 2007.

Title: Development of Bakelite RPC.
3. Indo-Japan collaboration meeting, SINP, Kolkata, India, May 2007.
Title: Development of Bakelite RPC in SINP/VECC.
4. IHEP, China, June 2007.
Title: Resistive Plate Chambers for Experiments at India-based Neutrino Observatory (INO).
5. DAE Symposium on Nuclear Physics at Sambalpur University, Burla, Smabalpur , India, December 11-15, 2007.
Title: Development of Resistive Plate Chamber using Bakelite.
6. IX International Workshop on Resistive Plate Chamber and related Detectors-2007, TIFR, Mumbai, India, February 13-16, 2008.
Title: Performances of linseed oil-free bakelite RPC prototypes with cosmic ray muons.
7. INO collaboration meeting, BARC, Mumbai, India, April 13-14, 2008.
Title: Performances of silicone coated bakelite RPC.
8. NENPP-08, University of Burdwan, India, November 28-29, 2008.
Title: Resistive Plate Chamber for neutrino oscillation experiment.
9. XVIII DAE-BRNS High Energy Physics Symposium, BHU Varanasi, India, December 14-18, 2008.
Title: RPC with high-resistive Indian-bakelite electrodes for low-rate operation.
10. DAE Symposium on Nuclear Physics at IIT Roorkee, India, December 22-26, 2008.
Title: Development of silicone-coated Bakelite RPC.
11. INO collaboration meeting, PU, Chandigarh, India, November 23-24, 2009.
Title: Development of Bakelite RPC and Status of INO prototype.
12. X. Workshop on Resistive Plate Chambers and related Detectors-2010, GSI, Darmstadt, Germany, February 09-12, 2010.
Title: Performances of silicone coated high resistive bakelite RPC.
13. DAE-BRNS Theme Meeting on Advanced Detectors for Imaging in Physics and Medical Diagnosis, VECC, Kolkata, India, March 4-5, 2010.
Title: Development of Bakelite RPC for INO-ICAL prototype.
14. India-based Neutrino Observatory National Meeting 2010. IIT Kharagpur, India, May 3-5, 2010.
Title: Latest results on the development of Bakelite RPC.
15. India-based Neutrino Observatory National Meeting 2010. IIT Kharagpur, India, May 3-5, 2010.
Title: Status of INO Prototype Lab at VECC.
16. Workshop "The muon detection system of the Compressed Baryonic Matter Experiment at FAIR", GSI, Darmstadt, Germany, January 19-21, 2011.
Title: Towards Realistic MUCH/GEM Detector Tests.

17. 19^{th} CBM Collaboration meeting, GSI, Darmstadt, Germany, March 26-30, 2012.
Title: Summary of the beam test at CERN SPS, October 2011.
18. CAPSS Seminar, Bose Institute, Kolkata, April 19, 2012.
Title: Gas filled detectors for high energy physics experiments.
19. RD51 mini week , CERN, Switzerland, June 13-15, 2012.
Title: Spark probability measurement for GEM for CBM.
20. 20^{th} CBM Collaboration meeting, VECC, Kolkata, India, September 24-28, 2012.
Title: R&D of GEM at GSI: an update.
21. MPGD 2013 & 11^{th} RD51 collaboration meeting, Paraninfo buidling, Zaragoza, Spain, 1-6 July 2013 (Through video).
Title: Development of GEM for the CBM MUCH Detector.
22. STAR regional meeting and discussion on phases of QCD, NISER, Bhubaneswar, India, July 8-10, 2013.
Title: Development of Muon Telescope Detector (MTD) at VECC.
23. IWAD and 14^{th} RD51 Collaboration Meeting, 27-31 October, 2014, VECC, Kolkata.
Title: Proposal to join RD51 collaboration of NISER.
24. RD51 mini week , CERN, Switzerland, December 08-11, 2014.
Title: Activities on GEM detector development at NISER-IoP, India.
25. 7^{th} International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2015), 2-6 February, 2015, VECC, Kolkata, India.
Title: ALICE TPC upgrade for High-Rate operations.
26. FAIR Detector Workshop: 19-20 February 2016, Puri, Odisha.
Title: GEM detector development for CBM at GSI.
27. National Science Day celebration, 29 February 2016, Maulana Azad College, Kolkata.
Title: Advanced gaseous detectors for high energy physics experiments.
28. SXC Workshop on Astroparticle Physics: 26-30 May 2016, Bose Institute, Darjeeling.
Title: (i) Detectors in experimental high energy physics.
(ii) Advanced gaseous detectors for high energy physics experiments.
29. Special Task Force meeting, September 2-4, 2016, BARC, Mumbai.
Title: ALICE TPC Upgrade with GEM detectors for high rate operations.
30. INSTR17: International Conference "Instrumentation for Colliding Beam Physics", Budker Institute of Nuclear Physics, and Novosibirsk State University, Novosibirsk, Russia 27 February - 3 March, 2017
Title: Study of some aspects of straw tube detectors for CBM-MuCh.

12 Poster Presentation

1. Frontier Detectors for Frontier Physics (11^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2009.
Title: Study of timing properties of single gap high-resistive bakelite RPC.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
2. International Symposium on Nuclear Physics. BARC, Mumbai, India, December 8-12, 2009.
Title: Time resolution measurement of silicone coated bakelite Resistive Plate Chamber.
S. Biswas, S. Bhattacharya, S. Bose, S. Chattopadhyay, S. Saha, Y.P. Viyogi.
3. International Symposium on Nuclear Physics. BARC, Mumbai, India, December 8-12, 2009.
Title: Development of multigap RPC.
A. Banerjee, A. M. Ghosh, **S. Biswas**, S. Bhattacharya, S. Bose, S. Chattopadhyay, M. R. Dutta Majumdar, S. Saha, Y.P. Viyogi.
4. Frontier Detectors for Frontier Physics (12^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 20-26, 2012.
Title: Study of the characteristics of GEM detectors for the future FAIR experiment CBM.
S. Biswas, A. Abuhoza, U. Frankenfeld, J. Hehner, C. J. Schmidt, H.R. Schmidt, M. Träger, S. Colafranceschi, A. Marinov, and A. Sharma.
5. Frontier Detectors for Frontier Physics (12^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 20-26, 2012.
Title: Development of Multi-gap Resistive Plate Chamber (MRPC) for Medical Imaging.
A. Banerjee, A. Roy, **S. Biswas**, S. Chattopadhyay, G. Das, S. Pal.
6. Frontier Detectors for Frontier Physics (12^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 20-26, 2012.
Title: Setup optimization toward accurate ageing studies of gas filled detectors.
A. Abuhoza, H.R. Schmidt, **S. Biswas**, U. Frankenfeld, J. Hehner, C. J. Schmidt.
7. 7^{th} International Conference on Physics and Astrophysics of Quark Gluon Plasma (ICPAQGP 2015), 2-6 February, 2015, VECC, Kolkata, India.
Title: Development of a triple GEM detector prototype.
Rajendra Nath Patra, Amit Nanda, Sharmili Rudra, **S. Biswas**, B. Mohanty, T. K. Nayak, P. K. Sahu, S. Sahu.
8. Frontier Detectors for Frontier Physics (13^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2015.
Title: A simple technique for gamma ray and cosmic ray spectroscopy using plastic scintillator.

RUDRA Sharmili, NANDAN Akhilesh P., NEOG Himangshu, **BISWAS S.**, MAHAPATRA S., MOHANTY B., SAMAL, P.K.

9. Frontier Detectors for Frontier Physics (13^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2015.
Title: Characterizations of GEM detector prototype.
Rajendra Nath Patra, Amit Nanda, Sharmili Rudra, P. Bhattacharya, Sumanya Sekhar Sahoo, **S. Biswas**, B. Mohanty, T. K. Nayak, P. K. Sahu, S. Sahu.

10. Frontier Detectors for Frontier Physics (13^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2015.
Title: Systematic measurements of the gain and the energy resolution of single and double mask GEM detectors.
Saikat Biswas, D. J. Schmidt, A. Abuhoza, U. Frankenfeld, C. Garabatos, J. Hehner, V. Kleipa, T. Morhardt, C. J. Schmidt, H. R. Schmidt, J. Wiechula.

11. Frontier Detectors for Frontier Physics (13^{th} Pisa meeting on advanced detectors), La Biodala, Isola d'Elba, Italy, May 24-30, 2015.
Title: Building and Commissioning of a Setup to Study Ageing Phenomena in Gaseous Detectors.
Alhussain Abuhoza, **S. Biswas**, U. Frankenfeld, J. Hehner, C. J. Schmidt, H.R. Schmidt.

12. INSTR17: International Conference "Instrumentation for Colliding Beam Physics", Budker Institute of Nuclear Physics, and Novosibirsk State University, Novosibirsk, Russia 27 February - 3 March, 2017
Title: Design and fabrication of a data logger for atmospheric pressure, temperature and relative humidity for gas-filled detector development.
S. Sahu, D. Nag, S. Rudra, S. Swain, **S. Biswas**, S. Das, P. K. Sahu.

13. INSTR17: International Conference "Instrumentation for Colliding Beam Physics", Budker Institute of Nuclear Physics, and Novosibirsk State University, Novosibirsk, Russia 27 February - 3 March, 2017.
Title: Development of scintillator detector for detection of cosmic ray shower.
S. Biswas, S. Das, S. K. Ghosh, D. Nag, S. Raha, S. Singh.

13 Seminars / Symposia organized

1. FAIR Detector Workshop: 19-20 February 2016, Puri, Odisha. (Organized along with Dr. Supriya Das, CAPSS).

2. Convener of National Conference on "Advanced Detectors for Nuclear, High Energy and Astroparticle Physics", 15-17 February 2017, Bose Institute, Kolkata, India.