

- 1. Name (in block letters) :** DR. PIJUSH KANTI DHAR, M.Sc.,Ph.D
- 2. Present Designation:** Associate Professor,
Former Head of the Department of Physics
(2002-2012), Arya Vidyapeeth College,
Guwahati- 16. State: ASSAM. India.
- 3. email address:** dr_pijush@yahoo.co.in
- 4. Personal website:** www.pijushkdhar.com
- 5. Date of Birth:** 02-06-1961.
- 6. Father's Name:** Mr. Prajesh Chandra Dhar
- 7. Residential Address:** C/o Mrs. Anjali Kalita,
House No-9, Rupalim Path,
P. O. Assam Sachivalaya, Dist- Kamrup,
Assam
PIN-781006
- 8. Nationality:** Indian
- 9. Caste :** General
- 10. Date of joining in present post:** 23-10-1987
- 11. Date of placement in the UGC**
Selection grade scale of pay: 23/10/2002

12. Research Degree (s):

Degrees	Title	Date of Award	Univeristy
M. Phil	NIL		
Ph.D./ D. Phil	Deep Inelastic neutrino scattering and UHE neutrino-nucleon Interaction.	01-04-2011	Gauhati University

13. Specialization: High Energy Physics

14. Visiting scientist:

Details:

- (1) Visiting Scientist, SAHA INSTITUTE OF NUCLEAR PHYSICS (SINP). (July 2010, July 2011).
- (2) Visiting Scientist, PHYSICAL RESEARCH LABORATORY (PRL), Ahmedabad. (July, 2012).
- (3) Visiting Scientist, SAHA INSTITUTE OF NUCLEAR PHYSICS (SINP).(July, 2013).
- (4) Visiting Scientist, Harishchandra Research Institute (HRI). (July, 2014)
- (5) Visiting Scientist, IISER, Kolkata (May, 2015)
- (6) Visiting Scientist, IIT, Bombay (October, 2015)
- (7) Visiting Scientist, PRL, Ahmedabad (July, 2016)

15. Research Paper Published

(National/International):

09 (International-08, National-02)

(Enclosed in Annexure-I)

16. Articles:

More than 200 (Name of few published articles enclosed in Annexure-II)

17. Guide ship:

I have been recognized as Ph.D Research Guide of Gauhati University in Physics from the date of effect 25-09-13. Currently one student is continuing research work under my guideship in topic associated in High Energy Particle Physics.

18. Linkage:

Have linkage with the Physics Department of Indian Institute of Technology (IIT) , Guwahati to perform collaborative research work. Prof. Poulouse of IITG and Dr. Dilip Choudhury, former Professor of GU are my collaborators. Besides, I have research collaborations with Physicists in Physical Research Laboratory (PRL), Ahmedabad and Harishchandra Research Institute, Allahabad. I have great linkage with PANE.

19. Positions held/leadership

Working as the publicity secretary of the Physics Academy of the North

East (PANE), which is working incessantly for the promotion encouragement of scientific research and dissemination of scientific knowledge in different institutes in the North East in the grassroots level.

20. Corporate Life: Copy Enclosed (**Annexure-III**)

21. Seminar/ Conference/

Workshop attended: Copy Enclosed (**Annexure-IV**)

22. Research Experience :

My current research interest is QCD Phenomenology, Neutrino Physics, Collider Physics, Physics beyond the standard model. I am actively involved in research work in

1. Study the process of the Production and decay of Top quark in the Standard Model and beyond.
2. Rare decay of top quark in the BSM scenario.
3. Study of Anomalous Couplings of Top quark/other.
4. Study of various observables like Invariant Mass squared distribution under the BSM Scenario.

In addition, I am currently continuing my work on UHE neutrino-nucleon collision, ice-cube data analysis etc.

23. Invited talk:

1. Gave an invited talk on ‘Anomalous coupling of Top quark to probe new Physics effects’ in IISER, Kolkata in May, 2015
2. Gave an invited talk on ‘BSM Physics associated with rare top quark decay’ in IIT, Bombay in October, 2015.

24. Chairmanship:

- (1) Chaired one Technical Paper presentation Session in 8th National Conference of the Physics Academy of North

East (PANE) held on 17th to 19th December, 2012 in Mizoram University, Aizawl

- (2) Chaired two Technical Paper Presentation sessions on ‘Neutrino Physics’ in XX DAE-BRNS Symposium on High Energy Physics, held at Shantiniketan University, Bolpur, West Bengal during 13-18th January, 2013.
- (3) Was the Chairman of one Technical Paper Presentation sessions on ‘Higgs Physics’ in XXI DAE-BRNS Symposium on High Energy Physics, held at IIT, Guwahati from 8-12 December, 2014

25. Membership of Professional Bodies:

- i. Life member of IPA (Indian Physics Association, Bombay)
- ii. Life member of PANE (Physics Academy of North-East India)

24. Extension work: Audio-visual media work (Given in Annexure V)

Annexure-I

Research Articles published in International/ National Journals:

(a) Publication in Journal from 2007:

• **International:**

- (1) D.K.Choudhury and Pijush Kanti Dhar, An improved analysis of deep inelastic neutrino data with the DGLAP equations at low and high x , Indian J. Phys 81(2), 259 (2007)
- (2) D.K.Choudhury and Pijush Kanti Dhar, Non-singlet structure function at low and high x in the next-to-leading order and CCFR neutrino data, Indian J. Phys 81(8), 819 (2007).
- (3) D.K.Choudhury and Pijush Kanti Dhar, x -distribution of Non-singlet structure function at low and high x , Indian J. Phys 83(12), 1013 (2009).
- (4) Pijush Kanti Dhar and D.K.Choudhury, Cross Sections of the Neutrino-nucleon Interaction at Ultra High Energy, Journal of the Korean Physical

Society, 63 (8), 1537 (2013).

- (5) Pijush Kanti Dhar and D.K.Choudhury, An Improved Analysis of the x Distribution of a Non-singlet Structure Function, Journal of the Korean Physical Society, 63 (8), 1530 (2013)
- (6) Pijush Kanti Dhar and D.K.Choudhury, An improved analysis of neutrino-nucleon interaction cross-section at ultra high energy,IOP Publishing Journal of Physics: Conference Series 481 012021 (2014), (doi:10.1088/1742- 6596/481/1/012021)
- (7) D.K.Choudhury and Pijush Kanti Dhar, An improved analysis of Chicago–Columbia–Fermilab–Rochester neutrino data with Singlet Dokshitzer–Gribov–Lipatov–Altarelli–Parisi equation at low x , Indian J. Phys 87 (10), 1041 (2013) (DOI 10.1007/s12648-013-0324-2)
- (8) Pijush Kanti Dhar and D.K.Choudhury, Analytical Evaluation of the Neutrino- Nucleon Interaction Cross-Sections at Ultrahigh Energy, ISRN High Energy Physics, Volume 2014, Article ID 462824, 5 pages (<http://dx.doi.org/10.1155/2014/462824>)

- **Regional:**

- (9) D.K.Choudhury and Pijush Kanti Dhar, On complete solutions of DGLAP Equations at low and high x , J. Assam Sc Soc, Vol. 46, June 2006, pp 39-46
- (10) D.K.Choudhury and Pijush Kanti Dhar, A phenomenological study of CCFR data with complete solutions of DGLAP equations at low and high x , J. Assam Sc Soc, Vol. 46, June 2006, pp 39-46

Annexure-II

Article Published in different News Paper/ Magazine/ Periodicals:

- 1) I usually write on different topics of social and scientific issues. The name of some of my social articles are as follows:
 - i) **Dowry – The silent invasion** – published in The Assam Tribune dated 4th July 1993.

- ii) **Beware, these are drugs that dupe** – published in The Hindustan Times dated March 17, 2001
- iii) **Work? Leprosy patients beg to differ** – published in The Hindustan Times dated July 28, 2001
- iv) **Crimes and punishment** (on security of girl child) – published in The Assam Tribune dated August 18, 2002
- v) **Women on top** (on women empowerment) – published in The Assam Tribune dated March 9, 2003
- vi) **Slow poison** (on spurious drugs) – published in The Assam Tribune dated June 25, 2005
- vii) **How safe are our children?** (on child abuse) – published in The Assam Tribune dated May 27, 2007
- viii) **Unwanted advances** (on sexual harassment) – published in The Eclectic Magazine November, 2008.

Scientific articles:

- i) **Harnessing Information technology** – published in The Assam Tribune dated February 28, 1999
- ii) **Discriminatory nature of NPT and CTBT** – published in The Assam Tribune dated July 23, 1999
- iii) **Spectacular Leonid Meteor shower – hope or despair?** – published in The Assam Tribune dated November 17, 1999
- iv) **A potential danger** (on nuclear pollution) – published in The Assam Tribune dated May 15, 2004
- v) **Ten years of PANE** (PhysicsAcademy of North East) and its future – published in The Sentinel dated October 19, 2008 and in the PANE website, TripuraUniversity.
- vi) **All for Physics** (on 6th PANE conference held in TripuraUniversity, Agartala)
- vii) **A glorious tradition of Science education in Assam** – published in The Eastern Chronicle dated December 25, 2009.
- viii) **How to make Physics Enjoyable in Classroom**-published in The Times of India dated April 27, 2015.

- 2) I have published a book of stories entitled “**Jiboner Antarale**” which also contains a scientific fiction.
- 3) I have depicted the plight of Muslim women in my article “**Fatwa and justice**’ published in the Edited Book “**Swakhar**”, edited By Dr. Sibanath Barman in 2009.
- 4) Was the Editor of an e-book of 100 pages of Physics Academy of North-East (**PANE e-newsletter-Inaugural issue- Volume 1-issue 1- 2011**).

Annexure-III

Contribution to the Corporate Life/ Community Services:

- 1) **Member, Governing Body, Arya Vidyapeeth College** for the session 2010-11.
- 2) **Member, “Purchase Committee for Laboratory Equipments”** of the college
- 3) **Convenor**, Foundation Day celebration, AryaVidyapeethCollege in 2014
- 4) **Member**, Sub-Committee constituted for preparation of NAAC inspection
- 5) **Member, Executive Committee of Golden Jubilee Celebration** of A.V.College in the year 2009.
- 6) **General Secretary, AryaVidyapeethCollege Science Society (From 1988 to 1994)**
- 7) **Convenor, College Foundation Day Celebration Committee, AryaVidyapeethCollege, 2014**

Annexure-IV

Participation in International/ National/ Regional/ Local Seminar & Workshop:

International Seminar/ Workshop:

- (a) Attended **International Workshop of High Energy Physics and Phenomenology (WHEPP) XIII** in Blue Lily Beach Resort, at Puri, Odhisha, India in December 12-21, 2013
- (b) Attended **International Workshop of High Energy Physics and Phenomenology (WHEPP)** at IIT, Kanpur in December, 2015.

National Seminar/ Workshop:

(a) Conference/Symposium

- (1) D.K.Choudhury and Pijush Kanti Dhar, *X-evolution of Non-singlet structure function*, presented at Homi Bhabha Centenary XVIII DAE-BRNS Symposium on High Energy Physics 2008, held at Banaras Hindu University, Varanasi.
- (2) D.K.Choudhury and Pijush Kanti Dhar, *t-evolution of Singlet structure function at low x*, presented at 6th National Conference on Physics Research in North East held on April, 2009 at Tripura University under the auspices of Physics Academy of North East (PANE)
- (3) D.K.Choudhury and Pijush Kanti Dhar, *Most General Solution of DGLAP equation at low and high x*, presented at the National Conference on Recent Trends in Mathematics and its Applications (NCRMTA-09) held in september, 2009 in the Department of Mathematics, Gauhati University under the collaboration of Assam Science Society.
- (4) Attended 7th National Conference of the Physics Academy of North East (PANE) held on 5th and 6th October, 2010 in Manipur University, Imphal and presented a paper on UHE neutrino interaction.
- (5) D.K.Choudhury and Pijush Kanti Dhar, *Advanced analysis of UHE neutrino-nucleon cross-section*, presented at Homi Bhabha Centenary XIX DAE-BRNS Symposium on High Energy Physics 2010, held at LNMIT, Jaipur, Rajasthan from December 13- 18, 2010.
- (6) D.K.Choudhury and Pijush Kanti Dhar, *Upper bounds of UHE neutrino-nucleon cross-section*, presented at National Seminar on Contemporary Trends of Research in Physical Sciences held at Gurucharan College, Silchar on February 11 and 12, 2011
- (7) Attended 8th National Conference of the Physics Academy of North East (PANE) held on 17th to 19th December, 2012 in Mizoram University, Aizawl and presented a paper on UHE neutrino-nucleon interaction.
- (8) D.K.Choudhury and Pijush Kanti Dhar, *Solution of Singlet DGLAP equation in next-to-leading order by Lagrange's method at low x limit*, presented at XX DAE-BRNS Symposium on High Energy Physics, held at Shantiniketan University, Bolpur West Bengal during 13-18th January, 2013.

- (9) Attended National Conference on Cosmology (NC-HEPC 2013) held on 12th to 14th February, 2013 in Gauhati University, Guwahati and presented a paper on bounds on UHE neutrino cross-section.

(b) Workshop

- (1) Participated in the National Workshop on Simulation & Data Analysis Techniques for High Energy Cosmic Ray Experiments held in 23-25th March 2009 at the Department of Physics, Gauhati University.
- (2) Participated in the National Workshop on Recent Trends in Astronomy and Astrophysics (arranged as a part of celebration of International Year of Astronomy) held in October, 2009 at the Department of Physics, Tezpur University (Sponsored by: IUCAA, PUNE)
- (3) Participated in the High Energy Physics Workshop held in IIT, Guwahati in February, 2014.
- (4) Attended XXI DAE-BRNS High Energy Physics Symposium 2010, held at IIT, Guwahati from 8-12 December, 2014

Regional Seminar/ Workshop :

- (1) D.K.Choudhury and Pijush Kanti Dhar, DGLAP equations and cross sections for Neutrino-Nucleon Interactions at ultra-high energy, presented at 4th Conference on Physics Research in North East held on November, 2004 at Gurucharan College, Silchar under the aegis of Physics Academy of North East.
- (2) D.K.Choudhury and Pijush Kanti Dhar, A leading order QCD prediction for Ultrahigh-energy 'Neutrino Interactions', presented at 49th Annual Technical Session of Assam Science Society held on January 11, 2004 at Regional Research Laboratory, Jorhat.
- (3) D.K.Choudhury and Pijush Kanti Dhar, A phenomenological studywith complete low and high x ,', presented at 50th Annual Technical Session of Assam Science Society held on 28-29 January, 2005 at Gauhati University, Guwahati

Orientation/ Refresher Courses:

1. Participated in the SERC Summer school in Theoretical High Energy Physics organised by Department of Science and Technology from June 23 to July 12, 1986 in Indian Institute of Science, Bangalore..

2. Participated in UGC Sponsored Refresher Course in Space Science (Physics) at University of PUNE from 24-11-98 to 21-12-98.
3. Participated in the UGC Sponsored Refresher Course in Physics at Assam University, Silchar, Assam from 1st December, 2001 to 21st December, 2001.
4. Participated in the UGC Sponsored Refresher Course in Physics at Gauhati University, Guwahati from 5th August, 2002 to 25th August, 2002
5. Participated in the UGC Sponsored Refresher Course in Physics at Assam University, Silchar, Assam from 3rd December, 2002 to 21st December, 2002

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One day Programme/symposium

1. Attended Inter-University Accelerator (IUAC) Acquaintance Programme on ‘Accelerator based multi-disciplinary scientific research’ at the Department of Physics, GauhatiUniversity, Guwahati on 16th November, 2015.
2. Attended one day U.G.C sponsored symposium on ‘Examination Reforms’ in AryaVidyapeethCollege, Guwahati on 18th February, 2012.
3. Attended one day symposium on ‘Enhancing the quality of Higher Education’ in AryaVidyapeethCollege, Guwahati on 30th April, 2015

Annexure-V

Audio-visual media work

Dr. Pijush Kanti Dhar has directed two important Documentaries for Doordarshan. One of them is on an extremely relevant social topic “Divorces in the Northeast India”. The other one is “Scope of development of fisheries in the Barak Valley of Assam (India)”. He had worked as Associate Director and script writer in a documentary for PPC, Doordarshan (North-east India) on a very important social topic “Women Empowerment and women Entrepreneurship”. Besides he was the Associate Director in a telefilm entitled “Mrigatrishna”, which depicts the hardship of an unemployed man in the present-day world. The telefilm was telecast in the PPC, Doordarshan (North-east India).
