

CURRICULUM VITAE

Binil ARYAL, Ph.D.

Professor of Physics

Dean

Institute of Science & Technology

Tribhuvan University, Kirtipur, Nepal



Recent Responsibilities

1. **Academician**, National Academy of Science & Technology (NAST), Nepal
2. **Dean**, Institute of Science & Technology, Tribhuvan University, Kirtipur
3. **Senator**, TU Assembly, TU (July 2015 to till date)
4. **Convener**, World Rank Indicator Improvement Suggestion Committee, TU
5. **Chairman**, Centre of Academic Excellence Committee, Tribhuvan University
6. **Member**, Deans Forum, UGC, Nepal
7. **Member**, Committee for TU's Initiatives towards Digitization, TU, Nepal
8. **Member**, Committee for Re-structure of Tribhuvan University, Nepal
9. **Member**, Standing Committee of Academic Council, Tribhuvan University
10. **Member**, Standing Committee of Student Welfare Division, Tribhuvan University
11. **Member**, Research Committee, Innsbruck University, Austria, Europe
12. **Member**, Research Committee, Institute of Engineering (IoE), T.U., Pulchowk
13. **Member**, Research Committee, Kathmandu University, Dhulikhel, Kavre
14. **Member**, Research Committee, Third World Academy of Sciences, Trieste, Italy
15. **Member**, Examination Reform Committee, Tribhuvan University
16. **Member**, Physics Subject Committee, Institute of Engineering (IoE), T.U., Pulchowk
17. **Member**, Physics Subject Committee, Kathmandu University, Dhulikhel
18. **Member**, Managing Committee, RECAST, TU
19. **Editor**, Tribhuvan University Journal, Nepal

Education

Degree	Institution	Place/Country	Period/division
Post Doctorate	University of Washington, USA & University Innsbruck, Austria	Seattle, USA Innsbruck, Austria	2005
Doctorate (Ph.D.)	University of Innsbruck, Innsbruck Austria, Europe	Innsbruck, Austria	2002
M.Sc. (Physics)	Central Department of Physics Tribhuvan University	Kirtipur, Nepal	1993/First
B.Sc.	R.R. M. Campus, Janakpur, Tribhuvan University	Janakpur Dham, Prades No. 2	1991/First
I.Sc.	R.R. M. Campus, Tribhuvan University	Janakpur Dham, Prades No. 2	1987/First
SLC	L.C. M. V. School	Jaleswor, Prades No. 2	1985/First

Post Doctorate Title: *A New Kind of Interaction in the Interstellar Medium*
(PI: Prof. Noam Soker & Prof. Bruce Ballik, Univ. of Washington, Seattle, USA)

Ph.D. Thesis Title: *Spatial Orientation of Spin Vectors of Galaxies in 40 Abell Clusters*
(Supervisor: Prof. Dr. Walter Saurer)

M.Sc. Dissertation Title: *Estimation of Uranium & Thorium in Rock Samples Collected from Central Siwalik of Nepal*
(Supervisor: Dr. Krishna Pd Kaphle, DMG)

WORK EXPERIENCE

❖ 28 years' experience of Teaching, Research, Expert and Administrator

Position	at	From	To
Dean	Institute of Science & Technology Tribhuvan University, Nepal	27 December 2021	26 December 2025
Head of Central department (second tenure)	Central Department of Physics, TU, Kirtipur	April 2018	Dec 2020
Head of Central department (First tenure)	Central Department of Physics, TU, Kirtipur	May 2014	April 2018
Head of Central department (Three Months Appointment)	Central Department of Physics, TU, Kirtipur	Feb 2014	April 2018
Full Professor	Central Department of Physics, TU, Kirtipur	March 2013	Till date
Associate Professor (Reader)	Central Department of Physics, TU, Kirtipur	June 2009	March 2013
Assistant Professor (Lecturer)	Central Department of Physics, TU, Kirtipur	June 1995*	June 2009
Lecturer	Kathmandu University, Dhulikhel	Oct 1993	June 1995

- *Ph.D. completed during 1998-2002 at the University of Innsbruck, Austria
- **Post Doc completed during 2002-2005 at the University of Washington, Seattle, USA

Committee Served

1. Committee Formed by Vice Chancellor of TU

Convener: myself

Members: Prof. Dr. Mahanada Chalise, Dr. Ganga Ram Gautam & Mr. Bishnu Aryal

Report Title: Possibilities of Online Education in Tribhuvan University

Status: Report implemented

2. Committee formed by: Chancellor of TU Honorable Prime Minister K. P. Sharma Oli

Convener: *Giri Raj Mani Pokhrel*, honorable Minister, Ministry of Education, Science & Technology, Government of Nepal.

Members: *Prof. Dr. Binil Aryal & Prof. Dr. Dilli Raj Sharma*

Report Title: Search Committee for Chairman & Member of TU Service Commission (2019)

Status: Report implemented

3. Committee formed by: Ministry of Education, Science & Technology (Minister level)

Convener: Prof. Dr. Dvraj Adhikari, member secretary, UGC, Nepal

Members: *Prof. Dr. Binil Aryal & Ramesh Silwal, Bhola Ojha & Dev Kumari Guragain*

Report Title: विश्वविद्यालयहरूले अब उपान्त सम्बन्धन सम्बन्धमा अपनाउनु पर्ने प्रकृया वा विधी अध्ययन कार्यदल प्रतिवेदन (2019)

Status: Report submitted to Honorable Minister Giri Raj Mani Pokhrel, not yet implemented.

4. Committee formed by: Vice Chancellor of TU Prof. Dr. Tirth Raj Khaniya

Convener: Prof. Dr. Ridish Pokhrel

Members: *Prof. Dr. Binil Aryal & Prof. Dr. Bhojraj Aryal*

Report Title: Institutionalization of Faculty Development Center for Excellence (2019)

Status: Report not yet implemented

5. Committee formed by: Vice Chancellor of TU Prof. Dr. Tirth Raj Khaniya

Convener: Prof. Dr. Ram Chandra Poudel

Members: *Prof. Dr. Binil Aryal & Dr. Bhanu Neupane*

Report Title: Credit Transfer Policy for Tribhuvan University (2018)

Status: Report implemented

6. **Committee formed by:** Vice Chancellor of TU Prof. Dr. Tirth Raj Khaniya
Convener: Prof. Dr. Ridish Pokhrel, Director, Planning Division, TU
Members: *Prof. Dr. Binil Aryal*, Prof. Dr. Ram Chandra Pokhrel
Report Title: Report on Lower Limit of CGPA and Grade Improvement Exam in TU (2018)
Status: Report implemented
7. **Committee formed by:** Vice Chancellor of TU Prof. Dr. Tirth Raj Khaniya
Convener: Prof. Dr. Sudha Tripathi, Rector, TU
Members: Prof. Dr. Bhimsen Devkota, *Prof. Dr. Binil Aryal*, Prof. Dr. Rajendra Guragain, & Dr. Ram Chandra Pokharel
Report Title: Improving GPA Grading System in TU (2018)
Status: Report not yet implemented
8. **Committee formed by:** Higher Education Reform Project, TU
Convener: Prof. Dr. Puskar Bajracharya, TU
Members: *Prof. Dr. Binil Aryal & Dr. Deepak Khadka*
Report Title: त्रिभुवन विश्वविद्यालय अनुसन्धानात्मक विशिष्टताको आधारमा खुला प्रतियोगिताद्वारा शिक्षकहरूको नियुक्तिको सिफारिस सम्बन्धी विनियम, २०७५
Status: Report implemented
9. **Committee formed by:** Dean, Institute of Science & Technology Chirika Shova Tuladhar
Convener: Prof. Dr. Chet Raj Bhatta, Asst Dean, IoST, TU
Members: *Prof. Dr. Binil Aryal*, Prof. Dr. Daman Raj Dhungana
Report Title: B.Sc. Project Work: Working Process (2016)
Status: Report implemented
10. **Committee formed by:** Dean, Institute of Science & Technology Chirika Shova Tuladhar
Convener: Prof. Dr. Chet Raj Bhatta, Asst Dean, IoST, TU
Members: *Prof. Dr. Binil Aryal*, Mr. Jhbahar Vai Prajapati
Report Title: Remuneration Scheme for M.Sc. Dissertation & Project in IoST (2016)
Status: Report implemented
11. **Committee formed by:** Dean, Institute of Science & Technology Prof. Dr. Ram Prasad Khatiwada
Convener: Tej Bd B.C., Asst Dean, IoST, TU
Members: *Prof. Dr. Binil Aryal*, Prof. Dr. Ram Chandra Basnet, Dr. Meghraj Banjara
Report Title: Semester Calendar IoST, TU (2017)
Status: Report implemented

PERSONAL STATUS

Date of Birth: B.S. 2024/06/13 in Saptari District, Pradesh No. 2, Nepal (*55 years old*)

Married (*three boys: 22, 16 and 9 years old*)

Address:

Postal – Dean’s Office, Institute of Science & Technology, Tribhuvan University, Kritipur, Kathmandu, Nepal

Residence – Jorpati VDC, Ward No. 2, *Gokerneshwor Nagarpalika*, Kathmandu district, Kathmandu, Nepal

Telephone: (+977) 1 44331054, Mobile: (+977) 9803228105

e-mail: binil.aryal@cdp.tu.edu.np

Field of research: Space Science & Technology, Galaxy & Star Formation, Interstellar medium, Pulsar, White Dwarf and Planetary Nebula, Dark Energy, Dark Matter and Radiation Physics

PUBLICATIONS

1. GOOGLE SCHOLAR

https://scholar.google.com/citations?view_op=list_works&hl=en&hl=en&user=j1xOCBEAAAAJ

Citations – 572

h-index – 13

i10-index – 19

Articles Published – 155

2. SCIMAGO LISTED JOURNALS (International)

- (1) Chhatkuli, Daya Nidhi, Paudel, Sanjaya, Bachchan, Rajesh Kumar, **Aryal, Binil**, Yoo, Jaewon, Forming blue compact dwarf galaxy through mergers, Monthly Notices of the Royal Astronomical Society, Volume 520, Issue 4, pp.4953-4960 (2023) DOI: [10.1093/mnras/stac3700](https://doi.org/10.1093/mnras/stac3700)
- (2) Paudel, Sanjaya, Yoon, Suk-Jin, Yoo, Jaewon, Smith, Rory, Chhatkuli, Daya Nidhi, Kumar Bachchan, Rajesh, **Aryal, Binil**, Adhikari, Binod, Adhikari, Namuna, Sedain, Amrit, Sheikh, Sharup, Dhital, Sarashwati, Giri, Ashutosh, Baral, Rabin, An Extensive Catalog of Early-type Dwarf Galaxies in the Local Universe: Morphology and Environment, The Astrophysical Journal Supplement Series, 265, 2, id.57, 14 pp. (2023) DOI: 10.3847/1538-4365/acbfa7
- (3) Bhanu Bhakta Sapkota, Ronald Weinberger, **Binil Aryal**, A New Far Infrared Cavity nearby White Dwarf WD0245-541, Jordan Journal of Physics, 16, 3, 210 (2023). DOI/Link: <https://journals.yu.edu.jo/jjp/Accepted%20articles-%20unpublished.html>
- (4) Janak Ratna Malla, Walter Saurer & **Binil Aryal**, Spatial Orientation of Galaxies in the Substructures of SDSS Supercluster S[184+003+0077], Bulgarian Astronomical Journal, 37, 97 (2022) DOI: <https://ui.adsabs.harvard.edu/abs/2022BulgAJ...37...97M/abstract>
- (5) Bhanu B Sapkota, Ronald Weinberger, **Binil Aryal**, Dust Cavities around White Dwarfs WD0038+ 730 and WD0531-022, Advanced Studies in Theoretical Physics 15 (7), 313-322 (2022). DOI: <http://www.m-hikari.com/astp/astp2021/astp5-8-2021/p/aryalASTP5-8-2021.pdf>
- (6) Janak Ratna Malla, Walter Saurer, **Binil Aryal**, No preferred alignments of angular momentum vectors of galaxies in the SDSS supercluster S [202-001+ 0084], Proceedings of the International Astronomical Union 14 (S353), 259-261 (2019)
- (7) Devendra R Upadhyay, L Khanal, P Hamal, **Binil Aryal**, Dust Structure Around Asymptotic Giant Branch Stars–CORRIGENDUM, Proceedings of the International Astronomical Union, 1-1, Cambridge University Press (2019)
- (8) Arjun Kumar Gautam & **B. Aryal**, A study of four low-latitude ($l < 10^\circ$) far-infrared cavities, Journal of Astrophysics and Astronomy, Springer, 40, 2, 116-125 (2019). DOI: 10.1007/s12036-019-9578-1
- (9) Binod Adhikari, Niraj Adhikari, **B. Aryal**, Narayan P. Chapagain, Ildiko Horvath, Impacts on proton fluxes observed during different interplanetary conditions, Journal of Solar Physics, Springer, 295(3), 163 (2019). DOI: 10.1007/s18217-03482
- (10) A. K. Jha, **B. Aryal**, Dust color temperature distribution of two FIR cavities at IRIS and AKARI maps, Journal Astronomy & Astrophysics (JAA), 54, 437 (2018).
- (11) A. K. Jha, **B. Aryal**, R. Weinberger, A study of dust color temperature and dust mass distributions of four far infrared loops, Revista Mexicana de Astronomía y Astrofísica (RxMAA), 53, 467-476 (2017).
- (12) A.K. Jha, **B. Aryal** & R. Weinberger, A Study of Far-Infrared Loop at Galactic Latitude -12° , ISST Journal of Applied Physics, 8 (1), 85-91 (2017).
- (13) S. N. Yadav, **B. Aryal**, W. Saurer, Preferred alignments of angular momentum vectors of galaxies in six dynamically unstable Abell clusters, RAA, 17, 7, 64 (2017).
- (14) S. N. Yadav, **B. Aryal**, W. Saurer, Spatial Orientation of Spin Vectors of Blue-shifted Galaxies, arXiv:1606.02881 (2016).
- (15) **B. Aryal**, S.N. Yadav & W. Saurer, Spatial orientation of galaxies in the Zone of Avoidance, Bulletin of Astron. Soc. Ind. (BASI), 40, 65 (2012)

- (16) **B. Aryal**, H. Bhattarai, S. Dhakal, C. Rajbahak & W. Saurer, Spatial Orientation of Galaxies in Six Rotating Clusters, Monthly Notice of Royal Astronomical Society (MNRAS), doi:10.1093/mnras/stt1124 (2013)
- (17) **B. Aryal**, S.N. Yadav & W. Saurer, *Spatial orientation of galaxies in the Zone of Avoidance*, Bulletin of Astron. Soc. Ind. (BASI), **40**, 65 (2012)
- (18) **B. Aryal**, R. R. Paudel, W. Saurer, *Spatial orientation of angular momentum vector of galaxies in three merging binary clusters*, Astrophysics & Space Science Journ. (Springer), **337**, 313 (2012)
- (19) **B. Aryal**, *Winding Sense of Galaxies Around the Local Supercluster*, Research in Astronomy & Astrophysics Journ., **11**, 293 (2011)
- (20) **B. Aryal**, R. K. Bachchan & Saurer W., *Optical Search Limit and Preferred Position Angle Distribution of Galaxies in 35 Clusters*, Bulletin of Astron. Soc. Ind. (BASI), **38**, 165 (2010)
- (21) **B. Aryal**, C. Rajbahak & R. Weinberger, *A giant dusty bipolar structure around the planetary nebula NGC 1514*, Monthly Notice of Royal Astronomical Society (MNRAS), **402**, 2, 1307 (2010)
- (22) **B. Aryal**, C. Rajbahak & R. Weinberger, *Planetary Nebula NGC 6826 and NGC 2988: early aspherical mass loss?*, Astrophysics & Space Science Journ. (Springer), **323**, 323 (2009)
- (23) **B. Aryal**, P. Kafle & W. Saurer, *Radial velocity dependence in the spatial orientations of galaxies in and around the local supercluster*, Monthly Notice of Royal Astronomical Society (MNRAS), **389**, 741 (2008)
- (24) **B. Aryal**, D. Nupane & W. Saurer, *Morphological dependence in the spatial orientations of galaxies around the Local Supercluster*, Astrophysics & Space Science Journ. (Springer), **314**, 177 (2008)
- (25) **B. Aryal**, S. Paudel & W. Saurer, *Coexistence of chiral symmetry restoration and random orientation of galaxies*, Astrophysics & Astronomy Journ. (A&A), **479**, 397 (2008)
- (26) **B. Aryal**, S. Paudel & W. Saurer, *Spatial Orientation of galaxies in 7 clusters of BM type II*, Monthly Notice of Royal Astronomical Society (MNRAS), **379**, 1011 (2007)
- (27) **B. Aryal**, S. R. Acharya & W. Saurer, *Chirality of spiral galaxies in the Local Supercluster*, Astrophysics & Space Science Journ. (Springer), **307**, 369 (2007)
- (28) **B. Aryal**, S. M. Kandel & W. Saurer, *Spatial orientation of galaxies in the core of the Shapley Concentration: The cluster Abell 3558*, Astrophysics & Astronomy Journ. (A&A), **458**, 377 (2006)
- (29) **B. Aryal** & R. Weinberger, *A new high latitude cone like far-IR nebula*, Astrophysics & Astronomy Journ. (A&A), **446**, 213 (2006)
- (30) **B. Aryal** & **W. Saurer**, *Spin vector orientation of galaxies in ten clusters of BM type II-III*, Monthly Notice of Royal Astronomical Society (MNRAS), **366**, 438 (2006)
- (31) **B. Aryal** & **W. Saurer**, *Spin vector orientation of galaxies in the region $19^{\text{h}}26^{\text{m}}00^{\text{s}} < \text{RA}(2000) < 20^{\text{h}}19^{\text{m}}00^{\text{s}}$, $-68^{\circ} < \text{Dec.}(2000) < -65^{\circ}$* , Monthly Notice of Royal Astronomical Society (MNRAS), **360**, 125 (2005)
- (32) **B. Aryal** & **W. Saurer**, *Spin vector orientation of galaxies in seven Abell clusters of BM type III*, Astrophysics & Astronomy Journ. (A&A), **432**, 841 (2005)
- (33) **B. Aryal** & **W. Saurer**, *Morphological dependence in the spatial orientation of Local Supercluster galaxies*, Astrophysics & Astronomy Journ. (A&A), **432**, 431 (2005)
- (34) R. Weinberger & **B. Aryal**, *Huge Dust Structures and Cavities Around PNe: NGC 6826 and NGC 2899*, Edited by Margaret Meixner, Joel H. Kastner, Bruce Balick and Noam Soker, ASP Conf. Proc., Vol. **313**. San Francisco: Astronomical Society of the Pacific, 2004., p.112-115 (2004)
- (35) R. Weinberger & **B. Aryal**, *Asymmetric mass-loss on the AGB: examples from IRAS data*, Edited by Y. Nakada, M. Honma and M. Seki. Astrophysics and Space Science Library, Vol. **283**, Dordrecht: Kluwer Academic Publishers, ISBN 1-4020-1162-8, p. 103-106 (2003)
- (36) **B. Aryal** & **W. Saurer**, *Spin vector orientation of galaxies in seven Abell clusters of BM type I*, A&A, **425**, 871 (2004)
- (37) **B. Aryal** & R. Weinberger: "Structure of Interstellar Bubbles: A Numerical Time-Dependent Calculation", Supplementary Issue 2, Vol. **324**, Short Contributions of the Annual Scientific Meeting of the Astronomische Gesellschaft in Berlin, September 23-28, 7 (2002)
- (38) **B. Aryal** & W. Saurer, *The influence of selection effects on the isotropic distribution curve in galaxy orientation studies*, Edited by José G. Funes, S. J. and Enrico Maria Corsini. San Francisco: Astronomical Society of the Pacific. ISBN: 1-58381-063-3, ASP Conf. Ser., Vol. **230**, p. 145-156 (2001)
- (39) **B. Aryal** & W. Saurer, *Comments on the expected isotropic distribution curve in galaxy orientation study*, A&AL, **364**, L97-L100 (2000)

Note: These papers can be found in the url: <http://adsabs.harvard.edu/>

3. NATIONAL/REGIONAL REFERRED JOURNALS

- (1) Daya N Chhatkuli, Sanjay Paudel, Amrit Sedhain, **Binil Aryal**, Structural Parameter of a Merging Compact Dwarf Galaxy CG 0315, Journal of Institute of Science and Technology **27** (2), 85-89 (2022)
- (2) Janak R Malla, Walter Saurer, **Binil Aryal**, Study of Substructures in SDSS Supercluster S [173+ 014+ 0082], Journal of Nepal Physical Society **8** (1), 35-38 (2022)
- (3) Daya Nidhi Chhatkuli, Sanjay Paudel, **Binil Aryal**, A spectroscopic study of the low redshift dwarf galaxy SDSS J134326.99+ 431118.7 to calculate star formation rate, *BIBECHANA* **18** (1), 100-107 (2021)
- (4) Ishwar Nath Joshi, Ajay Kumar Jha, **Binil Aryal**, A study of dust structure nearby white dwarf WD1334-678, *BIBECHANA* **18** (2), 130-137 (2021)
- (5) Ajay K Jha, Anil Yadav, Devendra R Upadhyay, **Binil Aryal**, Dust Properties of Super-Nova Remnant (Crab Nebula) Using AKARI Survey, Journal of Nepal Physical Society **7** (4), 64-70 (2021)
- (6) Pravin Thapa, **Binil Aryal**, Use of geometric Brownian motion to forecast stock market scenario using post covid-19 NEPSE index, *Bibechana* **18** (2), 50-60 (2021)
- (7) Sujan P Gautam, Ashok Silwal, N Lamichhane, Ajay K Jha, **Binil Aryal**, Study of star formation rate and metallicity of the low redshift ($z < 0.02$) dwarf galaxies, *BIBECHANA* **18** (2), 43-49 (2021)
- (8) Daya Nidhi Chhatkuli, Sanjay Paudel, **Binil Aryal**, Study of star formation rate and metallicity of an interacting dwarf galaxy NGC 2604, Journal of Institute of Science and Technology **25** (2), 55-60 (2020)
- (9) Arjun Kumar Gautam, **Binil Aryal**, Study of dust color temperature and visual extinction distribution of a far infrared cavity at 60 and 100 μm IRAS map around the AGB star at galactic latitude 8.6°, *BIBECHANA* **17**, 42-49 (2020)
- (10) Sujan P Gautam, Ashok Silwal, Suman Acharya, **Binil Aryal**, Annual Effective Dose from Natural Background Radiation in Pokhara, Nepal, Asian Journal of Research and Reviews in Physics **3** (2), 36-42 (2020)
- (11) Janak R Malla, Walter Saurer, **Binil Aryal**, Spatial orientation of galaxies in supercluster S [227+ 006+ 0078], *BIBECHANA* **17**, 117-122 (2020)
- (12) Bhanu B Sapkota, **Binil Aryal**, A study of far infrared cavity At-3.6 Galactic latitude, Journal of Nepal Physical Society **5** (1), 54-58 (2019)
- (13) Arjun Kumar Gautam, **Binil Aryal**, Study of two far infrared cavities nearby asymptotic giant branch stars under infrared astronomical satellite maps, Journal of Institute of Science and Technology **24** (2), 76-84 (2019)
- (14) R.K. Koju, **B. Aryal**, S.R. Shahi, *Photometry of Betelgeuse from National Observatory, Nagarkot, Nepal*, Scientific World (ISSN 1996-8949), **Vol. 10**, p. 7 – 12 (2012)
- (15) **B. Aryal**, *Asymmetric mass-loss from white dwarf WD 0253+ 209: Secret Revealed*, *Bibechana* (ISSN 2091-0762), **Vol. 8**, P. 1-7 (2012)
- (16) **B. Aryal**, R. Weinberger, *Dust structure around white dwarf WD 1003-44 in 60 and 100 μm IRAS survey*, The Himalayan physics, **Vol. 2**, No. 2, p. 5-10 (2011)
- (17) **B. Aryal**, D. Yadav, *A new relation between preferred inclination and mean radial velocity of the cluster*, Scientific World (ISSN 1996-8949), **Vol. 9**, p. 18 – 24 (2011)
- (18) **B. Aryal**, H.K. Neupane, S.R. Shahi, *Study of the flux density variation along Saturn's ring observed from National Observatory, Nagarkot, Nepal*, Scientific World (ISSN 1996-8949), **Vol. 9**, p. 8 – 12 (2011)
- (19) **B. Aryal**, *Temperature and Mass profile of far-infrared Skeleton Nebula*, The Himalayan Physics, Vol. 1, p. 1-3 (2010)
- (20) **B. Aryal**, Chiral property of Field Galaxies around the Local Supercluster, Scientific World (ISSN 1996-8949), **Vol. 8**, p.81 – 90 (2010)
- (21) N.R Ghimire, S.R Shahi and **B. Aryal**, *Study of the flux density variation in and around the planet Jupiter using 16" L X 200 GPS Schmidt-Cassegrain Telescope at National Observatory, Nagarkot, Nepal*, Scientific World (ISSN 1996-8949), **Vol. 8**, p. 4 – 9 (2010)
- (22) R.K Bachhan, **B. Aryal**, U. Khanal, Estimation of cosmological constant of near by Spiral Galaxies using rotation curve, Scientific World (ISSN 1996-8949), **Vol. 8**, p.15 – 18 (2010)
- (23) **B. Aryal**, K. Simkhada, C. Rajbahak & R. Weinberger, A New Symmetrical Far Infrared Nebula at -33 degree declination, Scientific World (ISSN 1996-8949), **Vol. 7**, p.3 – 9 (2009)
- (24) **B. Aryal**, A. Devkota & R. Weinberger, Formation of Interstellar Bubble: A Time Dependent Numerical Simulation, Scientific World (ISSN 1996-8949), **Vol. 6**, No. 6, p. 8 – 15 (2008)
- (25) **B. Aryal**, A. Mishra & R. Weinberger, Study of Mass-loss in the Planetary Nebula NGC 1514, Scientific World (ISSN 1996-8949), **Vol. 5**, No. 5, p. 6-9 (2007)
- (26) **B. Aryal** & R. Weinberger: *Existence of Cold Plasma in the Newly Discovered Far-Infrared nebula*, Proceeding of Nepal Physical Society, **Vol. 23**, No. 1 (2006)
- (27) **B. Aryal** & W. Saurer: *A study of radial velocity dependence in the spatial orientation of 5398 galaxies in the Local Supercluster*, Scientific World, Vol. 4, No. 4, p.8-12 (2006)

- (28) **B. Aryal** & W. Saurer, Anisotropy in the Spatial Orientation of Spin Vectors of 50 Blue-shifted Galaxies in the Local Supercluster, *Journal of Institute of Science & Technology*, **Vol. 14**, p.22-33 (2005-2006)
- (29) **B. Aryal** & R. Weinberger: *A huge dust structure around the planetary nebula NGC6826*, *Scientific World*, Vol. 3, No. 3, 1 (2005)
- (30) M. M. Aryal, **B. Aryal** & N. J. Ghimire, Introduction to the concept of Field, *Proceedings of the Seminar on Applicable Mathematics*, **Vol. III**, p.1-5 (2005)
- (31) R. Weinberger & **B. Aryal**, *A Gaint Dusty Bipolar Structure Around the Planetary Nebula NGC 1514*, *Monthly Notice of Royal Astronomical Society (MNRAS)* **348**, 172 (2005)
- (32) **B. Aryal** & W. Saurer: “*Does Morphological and Radial Velocity Dependence Exists Concerning Galaxy Orientation?*”, *Supplementary Issue 2*, Vol. 324, *Short Contributions of the Annual Scientific Meeting of the Astronomische Gesellschaft in Berlin*, September 23-28, 2002, p.90
- (33) **B. Aryal** & W. Saurer: “*Spatial Orientation of Disk Galaxies in the 32 Abell Clusters*” *Astron. Ges. Abstr. Ser.* **18**, 63 (2001)
- (34) **B. Aryal** & W. Saurer: “*Spatial Orientations of Spin Vectors of 5398 Local Supercluster galaxies*” *Astron. Ges. Abstr. Ser.* **18**, 218 (2001)
- (35) **B. Aryal** & W. Saurer: “*Spatial Orientation of 914 Galaxies in the Core of the Shapley Concentration*” *Astron. Ges. Abstr. Ser.* **17**, 78(2000)
- (36) **B. Aryal** & W. Saurer: “*Spin Vector Orientation of 1192 Disk Galaxies in the Region $19^h26^m00^s < \alpha(2000) < 20^h19^m00^s$, $\delta(2000) = -65^\circ \pm 3^\circ$* ” *Astron. Ges. Abstr. Ser.* **17**, 78(2000)
- (37) **B. Aryal** & W. Saurer: “*The Orientation of Disk Galaxies in Three Abell Clusters*” *Astron. Ges. Abstr. Ser.* **15**, 140 (1999)
- (38) **B. Aryal**, *Activity of Radium-226 & Cesium-137 in Drinking Water of Kathmandu Valley*, *Journal of Nepal Physical Society*, **Vol. 15**, No. 1, p. 5-9 (1998)
- (39) **B. Aryal**, *Estimation of Cesium-137 in Milk*, *Journal of Nepal Physical Society*, **Vol. 15**, No. 1, p. 15-18 (1998)
- (40) **B. Aryal**, I. P. Nupane, A. R. Adhikari, R. Khanal, N. M. Shakya, *A Study of the General Feature of Total Solar Eclipse of October 24, 1995 Seen From Bharatpur, Rajasthan, India*, *Journ. of Nepal Physical Society*, **Vol. 13**, No. 1, p. 6-8 (1996)
- (41) K. K. Upreti, **B. Aryal**, I. P. Nupane, R. C. Rai, R. Khanal, R. Parajuli & N. M. Shakya, *Variation of Natural Background With Altitude (1350 m to 2760 m, Phulchowki Peak)*, *Journ. of Nepal Physical Society*, **Vol. 13**, No. 1, p. 25-27 (1996)

4. GENERAL ARTICLE

- (1) **B. Aryal**, Online Initiatives to upgrade Higher Education of Tribhuvan University in Covid-19 Pandemic, *Symmetry*, Vol. XIII, p. 21-27 (2021)
- (2) **B. Aryal**, Perilous Journey of Our Universities: Affiliation, Tribhuvan University Smarika (2019)
- (3) **B. Aryal**, *Brain Drain: Tailing Issue in Nepal*, *Symmetry Magazine*, Pub.: Central Department of Physics, Tribhuvan University, Kirtipur, Vol. XII, p. 1-4 (2019)
- (4) **B. Aryal**, *Royal Road to Quantum Mechanics*, *Symmetry Magazine*, Pub.: Central Department of Physics, Tribhuvan University, Kirtipur, Vol. VII, p. 1-4 (2012)
- (5) **B. Aryal**, *Higgs Tatwa: Prabal Mirtyu Ikshya ya Sirsthi ko Chahana (about Higgs Boson)*, ISSN 2091-1823, Barsa 1, Anka 2, Purnanka 2, p. 6 & 15 (2012)
- (6) **B. Aryal**, *Stupendous Explosions at Gigantic distances: Gamma Ray Burst Mystery Unrevealed*, *Symmetry Magazine*, Vol. VI, p. 15-18, Pub.: Central Department of Physics, Tribhuvan University, Kirtipur (2011)
- (7) **B. Aryal**, *Bhrmanda Bare Marx ko Bahas*, *Sangeen Magazine (three-monthly)*, Barsa 28, Anka 2, Purnanka 47, p. 10-12 (2011)
- (8) **B. Aryal** & R. Weinberger, *Super-cooled shocked region in the Milky way: Gigantic Super Bubble?* *Illumination Magazine*, Vol. 1, No. 1, p. 10-15, Pub.: Patan Multiple Campus, Lalitpur (2011)
- (9) R.K Bachhan & **B. Aryal**, *Astronomy and Astrophysics in Nepal*, *Illumination Magazine*, **Vol. 1**, No. 1, p. 38-40, Pub.: Patan Multiple Campus, Lalitpur (2011)
- (10) **B. Aryal**, *Jamin muni vandar, Jamin mathi hahakar*, *Baigyanik Jagat*, Barsa 10, Anka: 9-10, p. 48-50 (2011)
- (11) **B. Aryal**, *Negative Energy, Big Bang and casual law*, *Symmetry Magazine*, **Vol. V**, p. 9-11, Pub.: Central Department of Physics, Tribhuvan University, Kirtipur (2009)
- (12) **B. Aryal**, *Ancient Perception of the Knowledge: Aristotle's Philosophy*, *Symmetry*, **Vol. III**, p. 1-6 (2007)
- (13) **B. Aryal**, *A Question of Continuous Symmetry-Breaking in the Large Scale Structure*, *Symmetry*, **Vol. II**, p. 5-8 (2006)
- (14) **B. Aryal**, *Understanding Virtual Particles*, *Symmetry*, **Vol. I**, p. 12-17 (2005)
- (15) L. B. K.C., **B. Aryal** & R. Khanal, *Development of Physics Education in Nepal*, *AAPPS (Association of Asia Pacific*

Physical Societies) Bulletin, Vol. 7, No. 2, 38-39 (1997)

- (16) **B. Aryal**, *Can Quantum Mechanical Description of Physical Reality be Considered Complete?*, Journ. of Nepal Physical Society, **Vol. 13**, No. 1, p. 9-11 (1996)
- (17) **B. Aryal** & R. Parajuli, *Introduction to the Critical Phenomena: Beyond Mean Field Theory*, Journ. of Nepal Physical Society, **Vol. 13**, No. 1, p. 12-14 (1996)
- (18) **B. Aryal**, *Hydrogen is Metal at Last*, Spandan, Annual Magazine of Kathmandu University, 1995, p.29-30.

5. RESEARCH PROJECT CONDUCTED

- (1) **B. Aryal**, *Spectrophotometry of the Planet Jupiter Observed from National Observatory, Nagarkot, Nepal* (Working Period: 9 months), National Academy of Science & Technology (NAST), Khumaltar, Lalitpur (submitted on 10 August 2012)
- (2) **B. Aryal**, *Chiral Symmetry Index of the Local Supercluster* (Working Period: 12 months), University of Astro-particle physics, Innsbruck University, A-6020, Innsbruck, Austria (submitted on 4 March 2011)
- (3) **B. Aryal** & R. Khanal, *Study of Radioisotopes in Rocks, Soils and Water Collected from Central Siwalik of Nepal using Gamma-ray Spectroscopy*, Working Period: 12 months, Ministry of Science & Technology, Government of Nepal, 2006-2007 (report submitted on Dec 2007)
- (4) **B. Aryal**, *Possible Electromagnetic Interaction Between the Cells*, Working Period: 3 months, Institute of Biophysics, Chinese Academy of Sciences, Beijing, China, 1998 (report submitted on July 1998)
- (5) N. B. Maharjan & **B. Aryal**, *Estimation of the Amount of Ra-226 in the Milk Collected from Kathmandu valley*, Working Period: 6 months, Research Division, Tribhuvan University, 1996 (report submitted on Dec 1996)

Ph.D. SUPERVISION (Completed)

- (1) **Dr. Shiv Narayan Yadav**
Title: *SPATIAL ORIENTATION OF ANGULAR MOMENTUM OF GALAXIES IN THE CLUSTERS AND SUPERCLUSTERS*
Co-Supervisor: Prof. Walter Saurer, Institute of Astro-particle Physics, Innsbruck University, Austria
- (2) **Dr. Ajay Kumar Jha**
Title: *STRUCTURES AROUND NEUTRON STAR AND PULSAR: A STUDY OF SHAPING MECHANISM IN THE ISM*
Co-Supervisor: Prof. Ronald Weinberger, Institute of Astro-particle Physics, Innsbruck University, Austria
- (3) **Dr. Arjun Kumar Gautam**
Title: *STUDY OF FAR INFRARED CAVITIES AT 60 AND 100 MICRON INFRARED ASTRONOMICAL SATELLITE MAPS AROUND ASYMPTOTIC GIANT BRANCH STARS*
Co-Supervisor: Prof. Ronald Weinberger, Institute of Astro-particle Physics, Innsbruck University, Austria
- (4) **Dr. Bhanu Bhakta Sapkota**
Title: *INTERSTELLAR CAVITY AROUND WHITE DWARFS*
Co-Supervisor: Prof. Ronald Weinberger, Institute of Astro-particle Physics, Innsbruck University, Austria
- (5) **Dr. Janak Ratna Malla**
Title: *SUBSTRUCTURE IDENTIFICATION IN THE SIX SDSS SUPERCLUSTERS*
Co-Supervisor: Prof. Walter Saurer, Institute of Astro-particle Physics, Innsbruck University, Austria

Ph.D. SUPERVISION (on-going)

Mr. Daya Nidhi Chhatkuli
Title: *Spectroscopy of Dwarf Galaxies*

MASTERS THESIS SUPERVISED (2006 – till date)

I have supervised **234 M.Sc. (Physics) students** for their masters' thesis or dissertation till December, 2023. At present, nine M.Sc. (physics) students are working with me for their masters' thesis. Details about the past and future masters' thesis are found in the webpage <https://tucdp.edu.np/>

BOOKS

- (1) *Teachers' and Trainers' Handbook for Semester-Based Teaching*, Authors: **Prof. Binil Aryal**, Prof. Jaya Pradhan, Prof. Bhoj Raj Aryal, Prof. Anjana Singh, Dr. Shyam Sharma & Mr. Surendra Subedi, Publisher: Tribhuvan University (2019)
- (2) *Heart of Physics Volume I & II*: Publisher K.E.C. Publication and Distributors, Kathmandu, Authors: **Prof. Binil Aryal** & M.N. Singh (2018)

CONFERENCES, MEETINGS, SCHOOLS – CONTRIBUTIONS

- (1) **Hongzhou**, China (6-20 June, 2013): participated as a Nepalese team leader at BCVSPIN Summer School on Astro-particle physics, and presented a talk on 'Astrophysics Research in Nepal'.
- (2) **Seoul**, South Korea (September, 2012): invited as a Jury Member (Judge) in 17th International Astronomy Olympiad, 16-24 September, 2012, Presented a talk on "A&A Research in Nepal" on the occasion of annual convention of Korean Astronomical Society.
- (3) **Hue**, Vietnam (July 2011): BCVSPIN Summer school on 'Cosmology & Astrophysics', presented two talks entitled '*galaxy orientation*' and 'Dark Energy' (invited as a resource person or speaker)
- (4) **Seattle**, USA (December 2010): Participated in a collaboration meeting in order to make a plan for the period 2010-2015, delivered a talk on 'Astrophysics Research in Nepal'
- (5) **Koeln**, Germany (October 2010): Participated in a symposium on SWIFT Mission and its importance, delivered a talk on 'Interaction in the cold Interstellar medium: bipolar emission?'
- (6) **Innsbruck**, Austria (October 2010): Collaborative meeting with Prof. Walter Saurer and Prof. Ronald Weinberger in order to find out the possibilities of Ph.D. activities at the Central Department of Physics, Tribhuvan University, Nepal
- (7) **Beijing**, China (July 2009): BCVSPIN Summer school on 'Cosmology & Astro-particle Physics', presented a talk entitled '*Optical Search Limit & Inclination Angle Distribution of Galaxies in the Cluster (won best contributory presentation prize)*'
- (8) **Innsbruck**, Austria (Jan 2009): A meeting on 'Orientation of Galaxies in Cluster', presented a talk entitled '*Non-vanishing Angular Momentum Vector of Galaxies in the Cluster*'
- (9) **Sydney**, Australia (Jan 2009): participated in a conference on "Disk Galaxies", presented a paper entitled "Spatial Orientation of Galaxies in the Local Supercluster" (received best presentation award)
- (10) **Innsbruck**, Austria (Nov 2007): A collaborative meeting on 'Orientation of Galaxies in Cluster', presented a talk entitled '*Chirality of large scale structure*'
- (11) **Beijing**, China (July 2007): BCSPIN Summer school on 'Cosmology & Astro-particle Physics', presented a talk entitled '*Estimation of Cosmological Constant using Galaxy Rotation Curve*'

- (12) **Strassburg**, France (October 2003): International symposium on ‘Astronomical Data Analysis Software & Systems (ADASS) XIII’, presented a poster entitled ‘*How the mass-loss rate is physically related to the radiative acceleration? – a computational approach*’
- (13) **Seattle**, USA (July-August 2003): International conference on ‘Asymmetrical Planetary Nebulae III’, presented a talk entitled ‘*Huge dust structures and cavities around PNe: NGC 6826 and NGC 2899*’, Mt. Rainier, University Washington
- (14) **Berlin**, Germany (October 2002): A&A International conference on ‘Cosmic circuit of matter’, presented 2 posters entitled ‘Structure of interstellar bubbles: a numerical time dependent calculation’ and ‘*Does morphological & radial velocity dependence exist concerning galaxy orientation?*’, respectively.
- (15) **Munich**, Germany (September 2001): A&A International conference on ‘Five Days of Creation: Astronomy with Large Telescope from Ground and Space’, delivered a talk in a symposium entitled ‘*Spin vector orientation of galaxies in 40 Abell clusters*’ and presented a poster entitled ‘*Spatial distribution of spin vectors of 5398 galaxies in the Local Supercluster*’
- (16) **Canary Island**, Spain (November 2000): XII Canary Island Winter School on ‘Astrophysical Polarimetry’, presented a poster entitled ‘*Spatial orientation of disk galaxies in five Abell clusters*’
- (17) **Alpbach**, Austria (July 2000): Alpbach Summer School on ‘Extragalactic Astronomy and Cosmology from Space’, presented a poster entitled ‘*Spatial orientation of 410 disk galaxies in the zone-of-avoidance*’
- (18) **Bremen**, Germany (September 2000): A&A International conference on ‘New Astrophysical Horizons’, presented 2 posters entitled ‘*Spatial orientation of 914 galaxies in the core of the Shapley concentration*’ and ‘*Spin Vector Orientation of 1192 Disk Galaxies in the Region $19^h26^m00s < \text{RA} < 20^h19^m00s$, $b(2000) = -65^\circ \pm 3^\circ$* ’, respectively.
- (19) **Rome**, Italy (June 2000): International Conference on ‘Galaxy Disks and Disk Galaxies’, presented a poster entitled ‘*Comments on the expected isotropic distribution curves in galaxy orientation studies*’
- (20) **Goettingen**, Germany (September 1999): A&A International conference on ‘New Astrophysical Horizons’, presented a poster entitled ‘*The orientation of disk galaxies in three Abell clusters*’
- (21) **Pune**, India (May 1995): Refresher Course on Astronomy and Astrophysics for the University Teacher’, IUCAA.

AWARD

- (1) **National Science Day Award for Upgrading S&T Research in Nepal (2022)**: Ministry of Education, S&T, Government of Nepal.
- (2) **Third World Academy of Science Award (TWAS AWARD in Physics)** for the year 2007 by Nepal Academy of Science and Technology (NAST) on the behalf of Third World Academy of Science (TWAS), Trieste, Italy.
- (3) **FWF Best Researcher of the Year (2004) Award**: Austrian Science Fund, 2005. Received a certificate and a Cash Prize of Twenty Thousand Euro by Austrian Government
- (4) University gold medal (**Mahendra Bidhya Bhushan ‘Kha’**) from the King (**Late King Birendra Bir Bikram Sahadev of Nepal**) for securing highest marks in the Masters degree in Tribhuvan University, Nepal (Feb 1996)

OTHERS

- (1) **Editor**, TU Journal, Tribhuvan University, 2016- till date.
- (2) **Editor (International)**, International Journal ‘*New Astronomy*’, Publisher: Elsevier, UK, since Dec. 2014- till date.
- (3) **Editor**, Relativity (Nepali Language), Author: Purna Bd M.A., Publisher: Taleju Prakashan.
- (4) **Editor**, Journal of *Nepal Physical Society*, Nepal Physical Society, 2009-2011
- (5) **Jury Member (International)**, IAO (International Astronomy Olympiad), Gwanju, South Korea, 17-24 October 2012
- (6) **Member**, SOC (Scientific Organizing Committee), International Conference on Astrophysics and Cosmology, 19-21 March, 2012, Kathmandu, Nepal
- (7) **Referee (International)**: served/serving as a reviewer (referee) for the International Peer Reviewed Journals: Astrophysical Journal, Astrophysics & Space Science, Physical Review E, Astronomy & Astrophysics Journal and Monthly Notice of Royal Astronomical Society.
- (8) **Articles in Newspapers**: More than 120 articles are published in the various national newspapers (Gorkhapatra daily, Kantipur daily, Kathmandu post, Himalayan Times, etc), particularly on popular science and scientific procedure.
- (9) **LOC (Member)**: International Conference on "*Black holes, jets and outflows*", Kathmandu, Nepal, October 14 – 18 (2014)
Webpage: <http://www.iasfbo.inaf.it/~palazzi/Nepal/Nepal2013/>
- (10) **Project Leader**: National Workshop on A&A, 25-28 June 2013, Central Department of Physics, Tribhuvan University, Kirtipur, Nepal (NWAA2013): Supported by IAU
Webpage: <http://www.astro4dev.org/category/tf1/nepal-workshop/>
- (11) **LOC (Chair) & SOC Member**: International Conference on Cosmology & Astrophysics (ICAC2012), CEDA, Kirtipur, Kathmandu, Nepal (19-21 March 2012)
Webpage: <http://icacnepal.webs.com>
- (12) **LOC & SOC Member**: International Conference on ‘Accretion and outflow in **black hole** systems’, Radisson Hotel, Kathmandu, Nepal (2010 October 11-15)
Webpage: <http://www.iasfbo.inaf.it/~palazzi/Nepal/WEB10/main.htm>
- (13) **Invited Speaker/Resource Person/Expert**: National Astronomy & Astrophysics School, conducted by the Ministry of Science & Technology in the year 2005-2017.
- (14) **Speaker & country Representative**: BCVSPIN (B: Bangladesh, C: China, V: Vietnam, S: Sri Lanka, P: Pakistan, I: India and N: Nepal) School on Cosmology & Astrophysics: Country Representative (2007 Beijing BCSPIN School, 2009 Beijing BCVSPIN School & 2011 Hue, Vietnam BCVSPIN School, 2013 Honzhou BCVSPIN School)
- (15) Worked on a project entitled ‘*Possible Electromagnetic Interaction Between the Cells*’ at the Institute of Biophysics, Chinese Academy of Sciences, Beijing, China (April-July, 1998)

- (16) Participation in the '*Deutsch als Fremdsprache I*' in the summer semester of 1999 at the University of Innsbruck, Austria
- (17) Several FM Radio and Television Interview on various recent developments on Science & Technology.
- (18) Ad-hoc committee member, Nepal International Physical Society, 2001-2002
- (19) Editorial board member, Nepal Physical Society, 1998
- (20) Executive member, Nepal Physical Society, 1995-1997
- (21) Computation/Computer Experience: MonteCarlo Simulation, Hydrodynamic Simulation, Smooth Particle Simulation, UNIX, LINUX, C++, MIDAS, IRAF, GYPSY, AMIRA, Matlab, etc
- (22) Amateur Artist: painting (oil & charcoal), few national level exhibitions
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Certification:

I, the undersigned, certify to the best of my knowledge that this CV correctly describes my qualifications and my experience.

Signature

Date: **01/03/2023**
Day/Month/Year