Curriculum Vitae of Salma Nasrin

Born: 19 July, 1968 at Satkhira (Bangladesh)

Present Address
Department of Mathematics
University of Dhaka
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Academic Degrees
2003: Ph.D. (Doctor of Science), Graduate School of Mathematical Science, the University of Tokyo, Japan
2000: M.S. (Master of Mathematical Sciences), Graduate School of Mathematical Science, the University of Tokyo, Japan
1990: M.Sc. (Master of Science), Department of Mathematics, University of Dhaka
1989: B.Sc. (Bachelor of Science), Department of Mathematics, University of Dhaka

Former and Present Professional Positions
September 2020 to date: Student Advisor, Department of Mathematics, University of Dhaka

March 2016 to date: Professor, Department of Mathematics, University of Dhaka

December 2007 to July 2014 : House Tutor , Ruqayyah Hall, University of Dhaka

July 2011 to March 2016: Associate Professor, Department of Mathematics, University of Dhaka

February 2007 to June 2011: Assistant Professor, Department of Mathematics, University of Dhaka

September 2003 to August 2005: **JSPS** (Japan Society for the Promotion of Science) Fellow at RIMS (Research Institute for Mathematical Sciences), Kyoto University, Japan

April 2003 to August 2003: Research Fellow (Postdoctoral Position) at the University of Tokyo

October 1998 to February 2007: Assistant Professor, Department of Mathematics, Shahjalal University of Science & Technology, Bangladesh

October 1995 to October 1998: Lecturer, Department of Mathematics, Shahjalal University of Science & Technology, Bangladesh

Awards, Academic Honors

2003– 2005: JSPS Postdoctoral Fellowship, Japan

2003: Valedictorian Representative of Graduates, Graduate School of Mathematical Sciences, the University of Tokyo, Japan

2000-2003: MONBUSHO Scholarship for Ph. D program, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan

1990: University of Dhaka Scholarship, Bangladesh

1986: Secondary and Higher Secondary Education Board Scholarship, Bangladesh

1984: Secondary and Higher Secondary Education Board Scholarship, Bangladesh

1982: Junior Scholarship, Khulna Division, Bangladesh

Membership:

1. Life Member of Japan Mathematical Society and Bangladesh Mathematical Society

2. Life Member of Japanese Universities Alumni Association in Bangladesh (JUAAB)

3. Life Member of the University of Tokyo Alumni Association in Bangladesh (UTAAB)

4. Life Member of Dhaka University Mathematics Alumni Association in Bangladesh (DUMAA)

Host–Professor for Postdoctoral Research (2003 – 2005): Professor Toshiyuki Kobayashi

Ph. D. Thesis Supervisor: Professor Toshiyuki Kobayashi and Professor Toshio Oshima, Graduate School of Mathematical Sciences, University of Tokyo

Title of the Ph. D. Thesis:
Corwin--Greenleaf multiplicity function for Hermitian Lie groups

M. S. Thesis Supervisor: Professor Toshiyuki Kobayashi, Graduate School of Mathematical Sciences, University of Tokyo

Title of the M. S. Thesis:
On a conjecture of Lipsman about proper actions of nilpotent Lie groups

M. Sc. Thesis Supervisor: Professor Munibur Rahman Chowdhury, Department of Mathematics, University of Dhaka, Dhaka, Bangladesh.

Title of the M. Sc. Thesis:
Studies on Three Themes in Algebra

Names of the Referees:

1. Prof. Munibur Rahman Chowdhury (University of Dhaka, Bangladesh)
2. Prof. Toshiyuki Kobayashi (University of Tokyo, Japan); toshi@ms.u-tokyo.ac.jp
3. Prof. Toshio Oshima (University of Tokyo, Japan); oshima@ms.u-tokyo.ac.jp
4. Prof. Hidenori Fujiwara (Fukuoka University, Japan); fujiwara@fuk.kindai.ac.jp
5. Prof. Soji Kaneyuki (Sophia University, Japan); kaneyuki@hoffman.cc.sophia.ac.jp
6. Prof. Ali Baklouti (Sfax) ali.baklouti@fss.rnu.tn

List of Publications

Journal Papers:

1. **Nasrin, S.**, "Criterion of Proper Actions for 2-step Nilpotent Lie Groups". Tokyo Journal of Mathematics, Vol. 24, No. 2, p.535-543, 2001.

2. Kobayashi, T and **Nasrin, S**, "Multiplicity One Theorem in the Orbit Method" - In memory of Professor F. Karpelevič. Preprint, Research Institute of Mathematical Science, Kyoto University, Japan, RIMS-1390, p. 1-11, 2002. Reprinted in Gindikin (editor), Lie groups and Symmetric Spaces. Advances in the Mathematical Sciences –**54**, Amer. Math. Soc. (Transl. (2), Vol. 210, p.161-169, 2003).

3. Kobayashi, T. and **Nasrin, S.**, "Deformation of Properly Discontinuous Actions of $\mathbf{Z}^k$ on $\mathbf{R}^{k+1}$", International Journal of Mathematics, Vol. 17, No. 10 , p. 1175-1193 , 2006.

4. **Nasrin, S.,** "Corwin - Greenleaf multiplicity functions for Hermitian symmetric spaces", Proc. Japan Acad., Vol. 84, Ser. A, p. 97-100, 2008.

5. **Nasrin, S.,** "Corwin - Greenleaf multiplicity functions for Hermitian symmetric spaces and multiplicity-one theorems in the orbit method", International Journal of Mathematics Vol. 21, No. 3 (2010) 279-296.

6. **Nasrin, S**. "Discrete decomposable branching laws and proper momentum maps", International Journal of Mathematics Vol. 23, No. 1 (2012) 1250021 (6 pages).

7. **Nasrin, S.**, "Proper Actions of certain Nilpotent Affine Groups with Codimension one Orbits", Journal of Scientific Research, Rajshahi University Vol. **4** (2), 315-326 (2012).

8. **Nasrin, S.**, "Classical limit of the tensor product of holomorphic discrete series representations", Journal of Geometriae Dedicata (2014) **173**, 83-88.

9. **Nasrin, S.**, "Corwin-Greenleaf multiplicity functions for complex semi simple symmetric spaces", International Journal of Mathematics Vol. **26**, No. **5** (2015) 1550039 (16 pages).

10. **Nasrin, S.,**Nilu, Y., T., Fardous, J. and Akter, R. "Matrix computations of Corwin-Greenleaf Multiplicity functions for Special Unitary Group", Dhaka University Journal of Science, Vol. **63 (2)** 2015 (July).

11. **Nasrin, S.**, "Inductive proof of the Fundamental Formula of Combinatorics", Jahangirnagar Journal of Mathematics and Mathematical Sciences, Jahangirnagar University, Vol. **29**, December, 2015, 35--38.

12. **Nasrin, S.** and Chowdhury, M., R., **"**Factorization Theory in Semi rings", Jahangirnagar Journal of Mathematics and Mathematical Sciences, Jahangirnagar University, Vol. **29**, December, 2015, 77--85.

13. **Nasrin, S.** and Nilu, Y., T., "On the Level of a Field", Jagannath University Journal of Science, Vol. **4 (1)**, January, 2016, 28--33.

14. **Nasrin, S.**, Coadjoint geometry for discretely decomposable restrictions of certain series of representations of indefinite unitary groups, International Journal of Mathematics, Vol. **28**, No. **11** (2017) 1750074 (7 pages).

15. Maria Akter and **Nasrin, S.,** Invariant Differential Operator on Homogeneous Space, International Journal of Mathematics and Computational Science Vol. **3**, No. **1**, 2017, pp. 1-5.

16. Maria Akter and **Nasrin, S.,** Symmetric Pair from Symmetric Space and Lie group, Journal of Engineering Mathematics & Statistics Volume **2** Issue **1,** 2017 (10 pages).

17. **Nasrin, S**., M. Asadujjaman and Jannatun Fardous Matrix Computations of Corwin-Greenleaf Multiplicity Functions for Symplectic Lie Groups, International Organization of Scientific Research -**Journal of Mathematics (IOSR-JM),** e-ISSN: 2278-5728, p-ISSN: 2319-765X. Volume 13, Issue 6, Ver. IV (Nov. - Dec. 2017), PP 25-31, www.iosrjournals.org.

18. Kobayashi, T. and Nasrin, S.,Geometry of Co-adjoint Orbits and Multiplicity-one Branching Laws for Symmetric Pairs, Algebras and Representation Theory, https://doi.org/10.1007/s10468-018-9810-8, © Springer Nature B.V. 2018.

Proceeding Papers:

1. **Nasrin, S.**, "Orbit method and discrete decomposability of the restrictions of representations", accepted in Proceedings of International Congress of Women Mathematicians (ICWM) 2014, August 12 and 14, 2014 Seoul, Korea.

2. Kobayashi, T and **Nasrin, S.**, "Deformation space of discontinuous groups $\mathbf{Z}^k$ for a nilmanifold$\mathbf{R}^{k+1}$", RIMS Workshop on Representation Theory of Group and Extension of Harmonic Analysis, Kyoto University, Japan, p.101-111, July 25-28, 2005.

3. **Nasrin, S.**, "Corwin - Greenleaf Multiplicity Function for Hermitian Lie Groups", Annu. Meet. of Math. Soc. of Japan, Nihon University, Japan, p. 20-21, March 27-30, 2005.

4. **Nasrin, S.**, "Corwin - Greenleaf Multiplicity Function for Hermitian Lie Groups - restriction to a maximal compact subgroup", Symposium on Representation Theory, Hokkaido, Japan, p. 21-25, December 2-5, 2003.

5. **Nasrin, S.**, "On a conjecture of Lipsman about proper actions of nilpotent Lie Groups", Annu. Meet. of Math. Soc. of Japan, Shimane University, Japan, pp. 47-48, September 25- 27, 2002.

Invited Lectures:

- Annual Meeting of Mathematical Society of Japan, Shimane University, Japan (2002).
- Symposium on Representation Theory, Hokkaido, Japan (2003).
- Annual Meeting of Mathematical Society of Japan, Nihon University, Japan (2005).
- RIMS Workshop on Representation Theory of Group and Extension of Harmonic Analysis, Kyoto University, Japan (2005).

- Annual Meeting of Bangladesh Mathematical Society, University of Dhaka, Bangladesh (2007).
- **Group Actions with applications in Geometry and Analysis in honour of** [Toshiyuki Kobayashi](#) **50th birthday REIMS, FRANCE, June 3 – 6, 2013.**
- International Congress of Women Mathematicians (ICWM) 2014, (August 12 and 14), and International Congress of Mathematicians (ICM) 2014, (August 13 – 21), Seoul, Korea.

Teaching and Research Experience

Joined as Lecturer in Mathematics at Shahjalal University of Science and Technology (SUST) on 30/10/1995.

Went to Japan and enrolled myself in the Graduate School of Mathematical Sciences at the **University of Tokyo** (UTMS). Earn the degree of **M.S. on March 29, 2000** in Mathematical Sciences by course work and thesis.

Continued to work for PhD under **Japanese Government Scholarship (Monbukagakusho)** in the same school and was awarded the PhD degree in Mathematical Sciences on **March 28, 2003**.

Was awarded '**Postdoctoral Fellowship**' by the **Japan Society for the Promotion of Science (JSPS)** for two years for cooperating research with Professor Toshiyuki Kobayashi.

Return to Bangladesh in August, 2005 and resume my duties at SUST.

Was promoted to Assistant Professor at SUST with effect from 31/10/1998.

Joined the University of Dhaka as Assistant Professor of Mathematics on 22/02/2007.

Was promoted to Associate Professor with effect from 13/07/2011.

Was promoted Professor with effect from 21/03/2016 and have been continuing this position since then.

Visited the Graduate School of Mathematical Sciences, University of Tokyo (UTMS) several times since my joining at Dhaka University (December 2007, May 2009, April 2013, July 2014, June 2016, June 2017) for collaborative research with Prof. T. Kobayashi.

I was invited by Professor Salah Mehdi of the University Paul Verlaine – Metz in France for a 'one month stay' in June, 2011 as a 'Visiting Research Fellow'(which is similar to "Visiting Assistant Professor") to undertake collaborative research. I profited very much from my interaction with Prof. S. Mehdi and his research team and with Professor R. Zierau of Oklahoma State University, who too was invited by Professor Mehdi at the same time. I am expecting to get some concrete results from those interactions.

During my stay in Metz, I prepared and submitted for publication the following papers under my sole authorship. These have been already published.

1. Proper Actions of certain Nilpotent Affine Groups with Co-dimension one Orbit, Journal of Scientific Research, Rajshahi University **4** (2), 315-326 (2012).

2. Discrete Decomposable Branching Laws and Proper Momentum Maps, submitted to International Journal of Mathematics, Vol. 23, No. 1 (2012) 12500221 (6 pages).

During July 25-29, 2011 I was invited to participate in the workshop on 'Branching Problems for Unitary Representations' at MPIM (Max Planck Institute for Mathematics), Bonn, Germany, jointly organized by AIM (American Institute of Mathematics) and MPIM. This gave me another opportunity to interact with peers in the area of the workshop.

During June 3-6, 2013 I was invited as one of the invited speakers in the conference on "Group Actions with applications in Geometry and Analysis" in honor of Toshiyuki Kobayashi 50th birthday at University of REIMS, FRANCE.

I have been awarded the "**TOGETHER 2014 Travel Grant**" to support attendance of both **International Congress of Women Mathematicians (ICWM) 2014, (August 12 and 14), and International Congress of Mathematicians (ICM) 2014, (August 13 – 21)**, Seoul, Korea. Moreover, I have been accepted as a poster presenter in ICWM.

Classes taken and subjects taught at the University of Dhaka

During the last eleven years I have been teaching the following courses in the Department of Mathematics at University of Dhaka:

MTM & MTH 104   Linear Algebra I

MTH 204   Linear Algebra II

MTM 201   Real Analysis I

MTM 203   Ordinary Differential Equations

MTH 301   Real Analysis II

MTH 304   Abstract Algebra

MTH 401   Introduction to Functional Analysis

MTMS 508   Lie algebras and Lie groups

Supervision of Honors Project and Master Thesis.

Besides teaching of the regular courses, each academic year I supervise the project work (MTH 490) of three to four undergraduate students.

I have been supervising the thesis work of a number of M.S students in the department. Among them, **Ten** have earned master's degree (Sessions: 2007-2008, 2008-09, 2009-10, 2010-11, 2012-13(two students), 2013-14, 2014-15, 2016-2017, 2017-2018) and one has started his work (Session: 2018-2019). I have also supervised the M.S. student Tanzila Yeasmin Nilu (Session: 2012-2013) as a research student. Furthermore, I am supervising a Ph.D student (Session: 2016-2017).