


Brief Biodata

Name: Dr. Ashish Agarwal

Designation:	Senior Principal Scientist, Head of Time and Frequency Metrology, Head of Indian Standard Time Division, and Professor of Academy of Scientific and Innovative Research	
DP No. and Name:	6.01 Time & Frequency Metrology	
DU No. and Name:	6.0 Indian Standard Time Division	
Email:	ashish@nplindia.org	
Date of Joining CSIR-NPL:	01 May 1997	
Phone (office)	01145608384, 01145608343	

Research Area/ Interest

Metrology, Atomic Clocks, Quantum Optics, Non-linear Optics, Photonics, Lasers and Optics, Time and Frequency, Time Scales, and Time Dissemination.

Educational Qualifications

(Please write latest qualification first)

Degree	Subject	University/ Institute	Year
PhD	Physical Sciences	JNU Delhi	1995
MSc	Physics	IIT Kanpur	1988
BSc	Physics, Chemistry, Maths	Rohilkhand University	1985

Academic / Research Experience

Grade / Post	Institute	Duration		Research Field
		From	To	
Senior Principal Scientist	CSIR-NPL	May 2017	To date	National Time Scale and Time Dissemination
Principal Scientist	CSIR-NPL	May 2012	May 2017	Time & Frequency Metrology, Dimensional Standards
Senior Scientist	CSIR-NPL	May 2008	May 2012	R&D on Rubidium Atomic Clock and Cs Fountain
Visiting Scientist	NPL Teddington, UK	Jan 2008	Apr 2008	R&D on Cesium Fountain
Scientist	CSIR-NPL	May 2004	May 2008	R&D on Cesium Fountain
Research Scientist	Northwestern University USA	Sep 2002	Sep 2003	R&D on Quantum Communications
Scientist B	CSIR-NPL	May 2000	May 2004	R&D on Cesium Fountain
CSIR Pool Officer	CSIR-NPL	Aug 1998	May 2000	R&D on Cesium Fountain

Project Researcher	CSIR-NPL	May 1998	Aug 1998	R&D on Quantum Optics
AIST Fellow	AIST Japan	Mar 1997	Mar 1998	R&D on Non-linear Optics
Project Scientist	IIT Delhi	Mar 1995	Mar 1997	R&D on Optical Coherence
Visiting Fellow	CAT Indore	Jan 1991	Feb 1991	R&D on Non-linear Optics
JRF/SRF	JNU Delhi	Aug 1989	March 1995	R&D on Laser Physics and Quantum Optics
DST Fellowship	IIT Kanpur	Nov 1987	July 1989	R&D on Laser Spectroscopy
VSRP	TIFR	May 1986	June 1986	R&D on Satellite Communications

No. of Publications

No. of Publications in SCI Journals	No. of Publications in non-SCI Journals	No. of Publications in Conference Proceedings	Books	Total
45	12	53	3	113

Selected Publications

- Collisional effects in gas lasers, **Ashish Agarwal** and R.Ghosh, Phys. Rev. A 47 (1993) 1407.
- Two-photon squeezed laser with long-lived atoms, **Ashish Agarwal** and R.Ghosh, Phys. Rev. A 50 (1994) 1950.
- Spatial correlation effects in a Laser, **Ashish Agarwal** and S. Chopra, Phys. Rev. A 54, 2503 (1996).
- Coherent Dip in Optical Kerr Measurement Arising from Grating Formation in weakly Absorptive Media, **Ashish Agarwal**, K. Kamada, Y Shimizu and K Ohta, Nonlinear Optics, Vol 21 (1999) 335
- Cesium Fountain Clock with Laser Cooling in a Squeezed Vacuum, **Ashish Agarwal**, G.M.Saxena A. Chatterjee and B S Mathur, Mapan - Supplement 2 (2001) 70.
- Super-Efficient Absorption Filter for Quantum Memory using Atomic Ensembles in a Vapor, A. Heifetz, **Ashish Agarwal**, George C. Cardoso, et.al, Optics Communications 232 (2004) 289.
- Indigenous development of Coherent Population trapped rubidium atomic clock, **Ashish Agarwal**, G M Saxena, et. al, Invited Talk at General Assembly of International Union of Radio science (URSI GA), New Delhi, October 2005
- Frequency and Intensity Control of Lasers to Cool and Control Caesium Atoms, **Ashish Agarwal** and A Sen Gupta, Mapan 27 (2012) 169.
- Development of Rubidium bulb and cell for Rubidium Atomic Clock, **Ashish Agarwal** and A Sen Gupta, Invited Talk in Asia Pacific Workshop on Time and Frequency 2015 (ATF – 2015)
- Reduction of uncertainty of Primary Time Scale generating UTC(NPLI) to 2.8 ns, **Ashish Agarwal**, M P Olaniya, S Yadav, et al. Invited Talk in URSI AP-RASC 2019, New Delhi, March 2019.

Patents

A portable device for expansion, collimation, focusing and precise alignment of coherent light beam, filed on 15.03.2019

Current Activities

Responsible for National Atomic Time Scale with international traceability to Universal Coordinated Time (UTC), which generates UTC (NPLI) and Indian Standard Time (IST); Maintenance of Traceability Link to BIPM's UTC and ISRO time scales in Bangalore and Lucknow; Project Leader of National Time Dissemination Project, Creation of Disaster Recover Centre and Backup Time Scale.

Honour(s)/Award(s)/ Fellowship(s)

- Awarded fellowship of Metrology society of India (MSI).
- Conferred Academic Brilliance Award 2018 by EET CRS.
- Conferred Technology Award 2017 by CSIR-National Physical Laboratory.
- Won Best paper award in national conference on advances in Metrology.
- Expert Core Committee Member of National Accreditation Board for Calibration and Testing Laboratories.
- The work on Rb Frequency Standard won the APMP scholarship to participate in Asia Pacific Metrology Program GA 2015 at National Institute of Metrology, Beijing, China.
- Delivered several invited lectures and keynote addresses in national and international conferences.
- Technical Assessor of National Accreditation Board for Testing and Calibration Laboratories.

Contributions to AcSIR

- Faculty member of several ACSIR courses
- Supervised PhD of 2 students

Membership of Professional Societies/ Institutions

- Associate Editor of Mapan-Journal of Metrology Society of India.
- Professor of Academy of Scientific & Innovative Research.
- MC member, Metrology Society of India
- NABL Lead Assessor
- MC member, Mombusho Scholars Association of India
- Member of Indian Society For Atomic and Molecular Physics
- Member of Indian Laser Association
- MC Member, Anglo Vedic Educational Association
- MC member, Society for Scientific Values
- Ex-Scientist, National Physical Laboratory, UK
- Ex-Scientist, North-western University USA

Any other Information

Honourable Indian Prime Minister, Shri Narendra Modiji dedicated National Atomic Time Scale generating Indian Standard Time to the nation on 4th January 2021 and declared CSIR-NPL as the Time Keeper of India.