


## Brief Biodata

Name: Dr. Girija Moona

<b>Designation:</b>	Senior Scientist (5013)	
<b>DP No. and Name:</b>	Sub. Div.#1.02, Length, Dimension and Nanometrology	
<b>DU No. and Name:</b>	DU#1, Physico-Mechanical Metrology	
<b>Email:</b>	moonag@nplindia.org	
<b>Date of Joining CSIR-NPL:</b>	August 13, 2009	
<b>Phone (office)</b>	011-47091669	
<b>Mobile (optional)</b>	-	

### Research Area/ Interest

- Working on dimensional characterization methods for metrological assessments, using laser interferometers, coordinate measuring machine, 3-D optical profiler and stylus profiler etc.
- Measurement uncertainty evaluation for dimensional parameters of additive manufactured components
- Application of Monte Carlo Simulation for measurement uncertainty evaluation
- Hybrid aluminium metal matrix composites
- Technical services projects related to dimensional metrology

### Educational Qualifications

(Please write latest qualification first)

Degree	Subject	University/ Institute	Year
Ph.D.	Mechanical Engineering	Delhi Technological University, Delhi	2020
M. Tech	Mechanical Engineering	Dr. A P J Abdul Kalam Technical University, Lucknow	2013
B. Tech	Mechanical Engineering	College of Technology, Govind Ballabh Pant University of Agriculture and Technology, Pantnagar	2004

### Academic / Research Experience

Grade / Post	Institute	Duration		Research Field
		From	To	
Senior Scientist	CSIR - National Physical Laboratory, New Delhi	13.08.2017	till date	Dimensional metrology
Scientist	CSIR - National Physical Laboratory, New Delhi	13.08.2009	13.08.2017	Dimensional metrology

<b>Sr. Lecturer</b>	ITS Engineering College, Greater Noida, U.P.	July 2008	July 2009	Mechanical engineering
<b>Lecturer</b>	Krishna Engineering College, Ghaziabad, U.P.	July 2005	July 2008	Mechanical engineering
<b>Teaching associate</b>	College of Technology, GBPUAT, Pantnagar	October 2004	June 2005	Mechanical engineering

### No. of Publications

<b>No. of Publications in SCI Journals</b>	<b>No. of Publications in non-SCI Journals</b>	<b>No. of Publications in Conference Proceedings</b>	<b>Books</b>	<b>Total</b>
26	03	45	01	75

### Selected Publications

<b>Sl. No.</b>	<b>Title</b>	<b>Journal</b>	<b>Year</b>
1.	Measurement uncertainty assessment of articulated arm coordinate measuring machine for length measurement errors using Monte Carlo Simulation	The International journal manufacturing technology, Springer	2021
2.	Final report on supplementary comparison on step height standards (APMP.L-S7) <b>(Piloted by NPL India)</b>	Metrologia, IOPscience	2021
3.	Uncertainty evaluation for frequency calibration of helium neon laser head using Monte Carlo Simulation	Mapan, Springer	2021
4.	Implementation of Monte Carlo Simulation in evaluation of uncertainty of measurement of a force transducer	Indian journal of pure and applied physics, NISCAIR	2021
5.	Tribological characterization of eco designed aluminium hybrid metal matrix composites	Indian journal of engineering and materials sciences, NISCAIR	2020
6.	Parameter optimization and characterization of environmental friendly aluminium hybrid metal matrix composites	Materials Research Express, IOPscience	2019
7.	Measurement uncertainty evaluation using Monte Carlo Simulation for newly established line scale calibration facility at CSIR-NPLI	Mapan, Springer	2019
8.	Relevance of dimensional metrology in manufacturing industries	Mapan, Springer	2018
9.	Evaluation of measurement Uncertainty OF SHADOW mask DOT pitch using different approaches	Transactions of the Institute of Measurement and Control, SAGE Publications	2018
10.	NPL Demonstrates 1 gm kibble balance experiments: linkage of macroscopic mass to	Current Science, Indian Academy of Sciences	2017

	plank constant		
11.	Monte Carlo method for evaluation of uncertainty of measurement in Brinell hardness scale	Indian journal of pure and applied physics, NISCAIR	2017
12.	Silicon wafer surface reflectance investigations by using different surface texturing parameters	Proceedings of the national academy of sciences, India Section A: Physical Sciences, National academy of sciences	2017
13.	Development and metrological characterization of a precision force transducer for static force measurement related applications	Measurement, Elsevier	2016
14.	Evaluation of measurement uncertainty for absolute flatness measurement, by using Fizeau interferometer with phase-shifting capability	Mapan, Springer	2014

### **Patents**

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### **Current Activities**

*(Not more than 100 words)*

<ul style="list-style-type: none"> <li>• Measurement uncertainty evaluation for dimensional parameters of additive manufactured components to observe the influence of various process parameters on dimensional stability of manufactured components through selective laser melting</li> <li>• Flatness measurement through image processing</li> <li>• Participation in international intercomparisons</li> <li>• Transformation of CMC to quantity equations</li> <li>• Operation and maintenance of primary standard of length for realization of SI unit “meter”</li> <li>• Calibration services</li> </ul>
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### **Honour(s)/Award(s)/ Fellowship(s)**

<p>Best paper award in International Conference on Emerging Trends in Electromechanical Technologies and Management, 2019</p> <p><b>Recognitions:</b></p> <ul style="list-style-type: none"> <li>• I am the APMP TCL approved CMC writer on BIPM KCDB portal for length, dimension and nanometrology on behalf of CSIR-NPL India</li> </ul>
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### **Contributions to AcSIR**

<ul style="list-style-type: none"> <li>• Assistant Professor, Engineering Sciences, AcSIR</li> <li>• Teaching length and dimension metrology, in AcSIR PG Diploma course on precision measurement and quality control (PMQC)</li> <li>• Member of AcSIR project proposal evaluation committee</li> <li>• Member in interview panels for PhD admissions in AcSIR</li> <li>• Organized various training programs on Dimensional Metrology, with HRD, CSIR-NPL</li> </ul>
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## **Membership of Professional Societies/ Institutions**

Life member: Metrology Society of India  
Member: International Association of Engineers

## **Any other Information**

*(Not more than 100 words)*

- Member-APMP Technical committee for length
- Member-APMP focus group for digital transformation
- Member-APMP future proofing task force
- Member-BIS committees
- Co-PI: TSP 180632, Establishment of reference standard for length at regional reference standard laboratory, Bangalore using laser interferometer
- Co-PI: NWP100, CSIR Integrated Skill Initiative Programme. Conducting various training programs for students, research scholars and industry personnel
- Piloted international intercomparison APMP.L-S7 for step height standards with NMI Thailand, NMI Japan, NMC/A\*STAR Singapore and BEV Austria.
- Participating in various international intercomparisons/ILCs on different dimensional parameters to prove the international equivalence of CSIR-NPL.
- Visited NPL UK and NMI Thailand on deputation
- Coordinated scientific interaction programs for SAARC NMIs under the aegis of PTB-SAARC collaboration project
- Qualified Assessor of ISO/IEC 17025:2017 of National Accreditation Board of Laboratories, Quality Control of India, Ministry of Science and Technology.
- Guest editor in special issues of journals and conference proceedings
- Mentored UG and PG students for their projects