Curriculum Vitae



Brief Profile:

Dr. N. Pingua is an Assistant Professor in the Chemical Engineering Department at the National Institute of Technology Tiruchirappalli, Tamil Nadu, India. He earned his B.Tech. in Chemical Engineering from Birsa Institute of Technology (BIT) Sindri, Dhanbad, India, in 2012. He later pursued his M.Tech. (up to the 3rd Semester) and Ph.D. in Chemical Engineering at the Indian Institute of Technology (IIT) Kanpur, India, completing his Ph.D. in 2021. Additionally, he has approximately two years of postdoctoral research experience at the Indian Institute of Technology (IIT) Roorkee, India.

His research interests encompass phase transformation, nucleation and crystallization, solid/liquid interaction, gas hydrate, disordered solids, carbon-based materials, the development of porous materials, and computational tools. These interests include creating disruptive technologies, answering important questions, and gaining fundamental insights. Nucleation and crystallization in liquids have numerous practical implications in science and technology, impacting daily life. Through phase transition, system such as water, gas hydrates, and carbon can transform to a stable phase (metastable state) via nucleation and crystallization. Materials like gas hydrates and microporous materials have significant potential application in gas adsorption, energy storage, water treatment, and more. Within the broad range of topics, his current research focuses on particular problems, including: [1] Phase transformation and relaxation dynamics of supercooled liquid, [2] Nucleation and crystal growth of supercooled liquids and gas hydrates, [3] Mechanical properties of disorderd solids, [4] Mechanism of ice crystallization in bulk and confined water, [5] Understanding the role of porous materials in energy storage, sorption, and separation, catalysis, light emission, and drug delivery. To investigate these topic, he uses computational tools such as Molecular Dynamics, Monte Carlo simulation, and structural analysis (ring-based approach) code.

1. Name: Dr. Nandlal Pingua

2. Designation: Assistant Professor

3. Office Address:

4. Telephone (Direct) (Optional):

Telephone: Extn (Optional):

Mobile (Optional): +91-9651853355

5. Email (Primary): nandlal@nitt.edu Email (Secondary) : pinguaiitk@gmail.com

6. Field(s) of Specialization:

Thermodynamics and Statistical Mechanics, Phase transition, Nucleation and Crystallization, Supercooled Liquid, Disordered Solids, Gas Hydrate, Microporous Materials, Solid-Liquid interaction, Carbon based materials such as Graphene, Carbon Nanotube.

7. Employment Profile

Job Title	Employer	From	То
Assistant Professor	NIT Tiruchirappalli	02-04-2024	Till Date
Research Associate (postdoctoral)	IIT Roorkee	26-04-2022	29-02-2024

8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	IIT Kanpur	2021	1 st	Chemical Engineering
M.Tech	IIT Kanpur	2013 (upto 3 rd Sem.)	1 st	Chemical Engineering
B.Tech	BIT Sindri Dhanbad	2012	1 st	Chemical Engineering

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	То

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	То

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11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2019	Best Oral Presentation Award	IIT Kanpur

12. Fellowships

Year of Award	Name of the Fellowship	Awarding	From	То
		Organization	(Month/Year)	(Month/Year)

- 13. Details of Academic Work
 - (i) Curriculum Development
 - (ii) Courses taught at Postgraduate and Undergraduate levels
 - (iii)Projects guided at Postgraduate level
 - (iv)Other contribution(s)

14. Details of Major R&D Projects

Title of Project	Funding Aganay	Dura	ation	Status
Title of Project	Funding Agency	From	То	Ongoing/ Completed

15. Number of PhDs guided

Name of the PhD	Title of PhD	Role(Supervisor/ Co-	Year of
Scholar	Thesis	Supervisor)	Award

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of	Role	Event	Venue
		Event	(Participant/	Organized	
		(International/	Speaker/	by	

		National/	Chairperson,		
		Local)	Paper		
		/	presenter,		
			Any other)		
12/06/2024	Mechanical	National	Speaker	IIT Madras,	Sterling
to	Response of			IIT	Kodai Lake,
14/06/2024	Amorphous			Guwahati,	Tamil Nadu,
	Solids Modelled			IIT Bhilai,	India
	by Large Scale			IIT BHU,	
	Particle Based			NIT	
	Simulation			Hamirpur,	
				BITs Pilani	
31/03/2023	Computational	National	Participant	IISER	IISER
to	Analysis on		1	Bhopal	Bhopal,
01/04/2023	Thermodynamics			1	India
	Aspects of				
	Relaxation in				
	Supercooled				
	Liquid at Water				
	at Different				
	Cooling Rate				
31/03/2023	Molecular	National	Paper	IISER	IISER
to	Dynamics Study		presenter	Bhopal	Bhopal,
01/04/2023	to Investigate the				India
	System Size				
	Effects on				
	Tetrahedral				
	Materials in				
	Supercooled				
	Region				
19/12/2022	Mechanical		Poster	IIT	IIT
to	response of		presenter	Kharagpur	Kharagpur
21/12/2022	Amorphous			Research	Research
	Silica Modelled			Park, India	Park, India
	by Large Scale				
	Particle Based				
	Simulation	T 4 4 1	D	MAHT	0.1:
14/04/2022	Characterization	International	Paper	MNIT	Online
14/04/2022	of Supercooled		presenter	Allahabad,	
to 16/04/2022	Monatomic Potential Model			India	
10/04/2022					
	of Water During Liquid-				
	Amorphous Transition				
	11ansinon				

14/04/2022 to 16/04/2022	A Computational Analysis on Thermodynamics Changes of Carbon in Liquid, and Solid State at T _{LL}	International	Participant	IICE Kolkata, India	HIT Kolkata, India
14/04/2022 to 16/04/2022	A Computational Analysis on Thermodynamics Changes with Chirality in Multi Walled Carbon Nanotube (MWCNTs)	International	Participant	IICE Kolkata, India	HIT Kolkata, India
21/02/2020 to 23/03/2020	Topological Identification Criteria, Stability, and Relevance of Pentagonal Nanochannels in Amorphous Ice	National	Poster presenter	IIT Kanpur	IIT Kanpur, India
30/03/2019 to 31/03/2019	Mechanism of Stable Stacking- Disordered Ice, Pentagonal Rings Formation, and Crystallization in Supercooled Monatomic (mW) Water	National	Paper presenter	IIT Kanpur	IIT Kanpur, India
19/05/2018 to 20/05/2018	Structure Pattern Responsible for Relaxation of Liquid- Amorphous Transition of Supercooled Tetrahedral Liquids	National	Paper presenter	IIT Bombay	IIT Bombay, India
17/07/2017 to 21/07/2017	Structural Characterization of Relaxation of Supercooled	International	Poster presenter	Jozef Stefan Institute and University of Ljubljana,	Ljubljana, Slovenia, Europe

	Tetrahedral				
	Liquid in Terms				
	of Boat and				
17/07/2017	Chair Rings	*	70	T 0 0 0	x · 11·
17/07/2017	Dynamical	International	Poster	Jozef Stefan	Ljubljana,
to	Instability		presenter	Institute and	Slovenia,
21/07/2017	Causes the			University	Europe
	Demise of a			of Ljubljana,	
	Supercooled				
	Tetrahedral				
	Liquid				
03/12/2016	Thermodynamics	National	Poster	IIT	IIT
to	and Structural		presenter	Gandhinagar	Gandhinagar,
04/12/2016	Aspects of		1		India
	Liquid-				
	Amorphous				
	Transition of				
	Supercooled				
	Tetrahedral				
	Liquid				
27/12/2016	Thermodynamics	National	Poster	IIT Madras,	A.C.TECH
to	and Structural		presenter	Anna	ANNA
30/12/2016	Aspects of			University	University
	Liquid-			Chennai	Chennai,
	Amorphous				India
	Transition of				
	Supercooled				
	Tetrahedral				
	Liquid				

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event	Date (s)	Role	Venue
-	(International/			
	National/ Local)			

18. Invited Talks delivered

Topic	Date	Inviting Organization
Mechanical Response of	12/06/2024 to 14/06/2024	IIT Madras, IIT Guwahati, IIT
Amorphous Solids		Bhilai, IIT BHU, NIT Hamirpur,
Modelled by Large Scale		BITs Pilani
Particle Based Simulation		

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date

20. Academic Foreign Visits

Country	Duration of Visit	Programme

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
Nandlal Pingua and A. K. Gautam	Molecular Dynamics Study on Relaxation of Supercooled Liquid Water at Different Cooling rate	Material Today Communications	39	108777	2024	3.46
Nandlal Pingua, and Pankaj A. Apte	Topological Identification Criteria, Stability, and Relevance of Pentagonal Nanochannels in Amorphous Ice	Journal of Physical Chemistry B	123	10301- 10310	2019	3.5
Nandlal Pingua, and Pankaj A. Apte	Increase in Local Crystalline Order Across the Limit of Stability Leads to Cubic- Hexagonal Stacking in Supercooled	Journal of Chemical Physics	149	074506	2018	4.4

	Monatomic (mW) Water					
Arvind K.	Dynamical	Journal of	168	1302-	2017	1.762
Gautam,	Instability Causes	Statistical		1318		
A. Goyal,	the Demise of a	Physics				
Nandlal	Supercooled	-				
Pingua,	Tetrahedral					
and Pankaj	Liquid					
A. Apte						
P. A. Apte,	The freezing	RSC Advances	5	44679-	2015	4.036
Nandlal	Tendency			44686		
Pingua, A.	Towards 4-					
Goyal, U.	Coordinated					
Kumar, S.	Amorphous					
Y. Willow,	Network Causes					
X. C.	Increase in Heat					
Zeng, and	Capacity of					
B. D.	Supercooled					
Kulkarni	Stillinger-Weber					

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/	Title of the	Page	Conference	Venue	Year
	Paper	Proceedings	numbers	Theme		
Arvind K.	Molecular	Advances in	-	The process	IISER	2023
Gautam,	Dynamics Study	Chemical		development	Bhopal,	
Nandlal	to Investigate the	Engineering		and	India	
Pingua,	System Size	and Science		Intensification		
Avinash	Effects on	(ACES) 2023		for		
Chandra	Tetrahedral			sustainability		
	Materials in			development		
	Supercooled					
	Region					

(C) Books & Monographs

(c) Books & M	O F	ı		
Author(s)	Title of	Name of	Year of	ISSN/ISBN
	Book/Monograph	Publishers	Publication	Number
Arvind K.	Production of Bio Fuels:	IIP Publisher,	2024	978-1-68576-
Gautam,	An overview on	Michigan, USA		456-2
Nandlal	Biodiesel Production	_		
Pingua,	from Waste Cooking Oil			
Avinash	_			
Chandra,				

Sunatak Kamsonlian				
Arvind K. Gautam, Nandlal Pingua, Avinash Chandra, Raj Kumar Arya,	Domestic Waste Management and Their Utilization	Springer Nature Singapore Pvt. Ltd.	2024	9789813346895