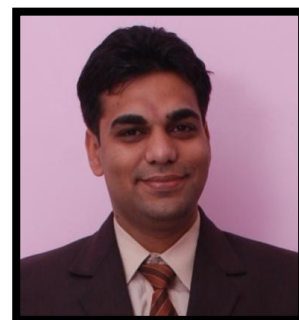


## CURRICULUM VITAE



**Dr. RISHI KUMAR**

Assistant Professor

PG Department of Physics

Guru Nanak College, Budhlada-151502, Distt. Mansa (Punjab)

(Affiliated to Punjabi University Patiala and Grant in Aid from Punjab Govt.)

[http://gncbudhlada.org/science\\_dpt\\_physics\\_faculty.php](http://gncbudhlada.org/science_dpt_physics_faculty.php)

### **Permanent Address**

Dr. Rishi Kumar S/o Sh. Ashwani Kumar

Joshian Street, Near Hanumaan Mandir, KotKapura-151204, Distt. Faridkot (Punjab)

Ph.9464192801, 7837497359(Mobile)

E-Mail: [rishikumar.phd@gmail.com](mailto:rishikumar.phd@gmail.com)

**Research Area:** Condensed Matter Physics.

**Area of Specialization:** Liquid crystals and Nanomaterials Composites.

h- index = **08**

i10 index=**06**

Citation Index=**157**

Publications in referred International journal = 17

Publications in referred National journal = 02

Publication in proceeding with ISBN no. = 02

Attended National and International Conferences = more than 25 (List attached in resume)

**Google Scholar Reference** <https://scholar.google.co.in/citations?user=p3wtrr8AAAAJ&hl=en>

**Publon Profile:** <https://publons.com/researcher/1348447/rishi-kumar>

### ACADEMIC QUALIFICATION

<i>Class</i>	<i>Year of Passing</i>	<i>Board / University</i>	<i>Marks</i>	<i>Result in %</i>
<i>10<sup>th</sup></i>	March 2002	P.S.E.B.	490/650	75.38%
<i>12<sup>th</sup> (Non Med.)</i>	March 2004	P.S.E.B.	270/450	60%
<i>B.Sc. (Non Med.)</i>	April 2007	Pbi.Univ., Patiala	1916/3000	63.87%
<i>M.Sc. (Physics)</i>	April 2009	DAV College Jalandhar (GNDU)	878/1200	73.17%
<i>PhD (Physics and Materials)</i>		Thapar Univ., Patiala	Enrolled: 08.01.2010 Thesis Submitted: 10.10.2014 Degree Received: 24.11.2014	

**PhD Supervisor:** Dr. K.K. Raina, Distinguished Professor, SPMS, Thapar University, Patiala, India and Vice Chancellor, DIT University, Dehradun, India

**PhD Thesis Title:** *Morphology and electro-optic study of polymer stabilized liquid crystal dispersed composites.*

**Total Experience (Research/Teaching):** 9 years (Research) & 6 Years (Teaching) till the date.

Position Held	Name of Organization	Period		Nature of Appointment (Role)
		From	To	
<b>PhD Research Scholar</b>	Thapar University, Patiala	8.01.2010	Nov. 2014	Research during PhD
<b>Teaching Associate</b>	Thapar University, Patiala	18.07.2011	31.12.2011	Research and Teaching during PhD
<b>Teaching Associate</b>	Thapar University, Patiala	02.01.2012	30.06.2012	Research and Teaching during PhD
<b>Teaching Associate</b>	Thapar University, Patiala	23.07.2012	07.12.2012	Research and Teaching during PhD
<b>UGC MRP Fellow</b>	Thapar University, Patiala	07.12.2012	08.01.2015	Research in UGC Project during PhD
<b>Teaching Experience After Doctorate</b>				
<b>Assistant Professor</b>	GZS PTU Campus, Bathinda	09.01.2015	16.06.2015	Adhoc (Research and Teaching)
<b>Assistant Professor</b>	Giani Zail Singh Campus College of Engineering & Technology, Bathinda (Maharaja Ranjit Singh Punjab Technical University Bathinda)	04/08/2015	30/06/2016	Adhoc (Research and Teaching)
<b>Assistant Professor (Regular)</b>	Guru Nanak College Budhlada (Govt. Aided)	29/08/2016	Persuing	Regular (Research and Teaching)

**ACHIEVEMENTS / AWARDS/ ROLE IN PROFESSIONAL DEVELOPMENT BODIES**

Sr. No.	Award	Society	Brief Discription
1	<b>Topper in Matriculation</b>	ABVP	Topper in Matriculation
2	<b>Best Paper Award</b>	Material Research Society of India (MRSI)	Paper entitled "A novel approach to Electro-optic and Thermo-chromic behavior of Polymer Stabilized Liquid Crystal composite film." <i>Rishi Kumar and K.K. Raina</i> in 22 <sup>nd</sup> MRSI AGM-2011, Bhopal (14-16February 2011)
3	<b>Best Paper Award</b>	National Conference on material Science at DAV College,	Best Paper entitled "Progress in Liquid Crystal Composite Films: Application in Future Display

		Jalandhar	Technology” <i>Rishi Kumar and K.K. Raina on 2-3 March 2012</i>
4	<b>UGC Major Research Project Fellow</b>	UGC	07/12/12 to 08/01/2015 (2year 1 month)
5	Optical Micro texture selected as the cover page of Liquid Crystals Journal	Liquid Crystals (International SCI Journal)	<i>Electro-optic and Molecular Relaxation Behavior of Fluoro substituted Achiral Unsymmetrical Four-ring Bent-Core Mesogen</i> ” was selected as the cover page for May issue 2014 of liquid crystal journal
<b>Various Achievement in Professional body Development</b>			
6	<b>Editor</b>	STM Journals	<i>National Journal of Thin Films, Coating Science Technology and Application</i>
7	<b>Member of Organizing Committee of National Conference</b>	Deoartment of Agriculture, Guru Nanak College, Budhlada	NABARD sponsored conference on Plant Breedings Approach for Seed Production in Agriculture Crops & Recent Trends in Food Processing organized on 01-02 <sup>nd</sup> March 2017.
8	<b>Reviewer Recognition Certificate</b>	Science Direct (Scopus Indexed)	<i>Awarded Reviewer Recognition by “Results in Physics” Journal of Science Direct in April 2018</i>
9	<b>Certificate of Outstanding Contribution in Reviewing</b>	Science Direct (Scopus Indexed)	<i>Certificate of Outstanding Contribution in Reviewing was Awarded Reviewer Recognition by “Results in Physics” Journal of Science Direct in October 2018</i>
10	<b>Member of Program Committee, TALE-2018</b>	IEEE International conference on teaching, assessment and Learning for Engineers TALE-2018	<i>TALE-2018 organized in Wollongong, Australia on 4-7 December 2018 by IEEE education society’s flagship Asia Pacific Conference (IEEE Region 10) Series</i>
11	<b>Reviewer Recognition Certificate</b>	Springer Nature Journal (Scopus Indexed)	<i>Awarded Reviewer Recognition by Journal of Materials Science: Materials in Electronics (Springer Nature) on 31<sup>st</sup> December 2018</i>
12	<b>Peer Reviewer</b>	<i>International Conference on Graphene and Novel Nanomaterials (GNN 2019)</i>	<i>Peer Reviewer of the 2019 International Conference on Graphene and Novel Nanomaterials (GNN 2019) to be held in Bangkok (Thailand) from</i>

			July 8-11, 2019
13	<b>Research Advisor</b>	NAN YANG ACADEMY OF SCIENCE, SINGAPORE Ref. No. 190-5-031	Appointed as Research Advisor in “NAN YANG ACADEMY OF SCIENCE” with effect from 16 <sup>th</sup> Oct. 2018
14	<b>Editorial Board Member</b>	International Journal “American Journal of Nano Research and Applications(NANO)	Appointed as Editorial Board Member of International Journal “American Journal of Nano Research and Applications(NANO); ISSN: 2575-3754 (Print) ; ISSN: 2575-3738 (Online) ; on 25 <sup>th</sup> May 2018
15	<b>Editorial Board Member</b>	SCIREA Journal of Physics	Appointed as Editorial Board Member of SCIREA Journal of Physics in August 2018
16	<b>Editorial Board Member</b>	SCIREA Journal of Materials	Appointed as Editorial Board Member of
17	<b>Editorial Board Member</b>	Non-Metallic Material Science ISSN: 2661-3301 (online)	Appointed as Editorial Board Member of International Journal “Non-Metallic Material Science” ISSN: 2661-3301 (online) for 25 Apr.2019 to 24 Apr.2020 (1 year)
18.	<b>Elsevier Reviewer Recognition Certificate</b>	Science Direct (Scopus Indexed)	Awarded Reviewer Recognition by “Material and Design” Journal of Science Direct in July 2019
19.	<b>Appreciation Certificate for Member of Technical committee for International conference</b>	G D Goenka University Gurugram	Appreciation Certificate awarded for Member of Technical committee for 5 <sup>th</sup> International conference on Recent development of Science, Engineering and Technology (REDSEZT 2019) from 15-16 Nov. 2019 by G D Goenka University Gurugram.

#### Member of Various Professional Bodies

Sr. No.	Professional Society	Membership Type	Membership ID	Membership Type
1	Material Research Society of India (MRSI)	National	LMB1410	Life Membership
2	Electron Microscopy of India	National	member number	Life Membership

	<a href="http://emsi.org.in">emsi.org.in</a>		<i>is: LM1715</i>	[6 Dec 2018]
3	International Association of Advanced Materials, Sweden (IAAM)	International	86812191622	5Year Membership [start from 22 <sup>th</sup> Nov. 2016]
4	Universal Association of Mechanical and Aeronautical Engineers (IRED)	International	SNM10100059365	Senior Member-IRED 3Year Membership [start from 14 <sup>th</sup> july 2018]
5	Universal Associaton of Computer and Electronics Engineers (IRED)	International	SNM10100059371	Senior Member-IRED 3Year Membership [start from 14 <sup>th</sup> july 2018]
6	International Association of Engineers (IAENG)	International	Member ID : 216835	Life Membership [07/07/2018]
7	<i>International Journal of Computer Sciences and Engineering (IJCSE)</i>	International	Member ID : IJCSE-M-00122	Member
8	International Association of Outsourcing Professionals (IAOP)	International	Membership ID: 110404	Associate Member
9	International Association of Journals and Conference (IAJC)	International	Membership ID: 9464192801	Associate Member
10	World Association for Online Education (WAOE)	International		Member of WAOE group online
11	World Society of Anti-Aging Medicine (WoSAAM)	International		Member
12	<i>Institute of Natural Science and Advanced Technology</i> <a href="https://insciat.org/submission">https://insciat.org/submission</a>	International	Membership number: SM002362	Senior Member [start on 26/12/2019]
13	<b>INDIAN ACADEMICIANS AND RESEARCHERS ASSOCIATION</b>	national	Membership number: M-913	Member [start on 4/9/2019]

#### Roles in different Scopus Indexed Journals

Sr. No.	Journal	Publisher	Type	Responsibility/Role
1	Materials Research Express	IOP Publishers	Scopus Indexed	Reviewer
2	Journal of Physics D: Applied Physics	IOP Publishers	Scopus Indexed	Reviewer
3	Journal of Physics: Condensed Matter	IOP Publishers	Scopus Indexed	Reviewer
4	Journal of applied polymer	Wiley Online	Scopus Indexed	Reviewer

	Science	Library		
5	Results in Physics	Elsevier (Science Direct)	Scopus Indexed	Reviewer
6	Journal of Materials Science: Materials in Electronics (JMSE)	Springer	Scopus Indexed	Reviewer
7	Nanoscale	Royal Society of Chemistry	Scopus Indexed	Reviewer
8	Ophthalmology Research & Reports		UGC Approved	Reviewer
9	<i>National Journal of Thin Films, Coating Science Technology and Application</i>	STM Journals	UGC Approved	Reviewer & Editor
10.	<i>Materials and Design</i>	Elsevier (Science Direct)	Scopus Indexed	Reviewer
11.	<i>Journal of Functional Foods</i>	Elsevier (Science Direct)	Scopus Indexed	Reviewer

**Subject Taught at UG/PG Level**

**Semester-I (Jan-June 2015), Giani Zail Singh PTU Campus Bathinda (Punjab)**

Sr.No	Semester/class	Subject Code	Subject Name	No. of Hours engaged per week			Total Scheduled Classes	Classes held	% age held	Students Strength (No.'s)
				L	T	P				
1.	4 <sup>th</sup> /M.Sc.	MPH-402	PHYSICS OF NANO-MATERIALS	4	1	0	60	60	100	07
2.	2 <sup>nd</sup> /M.Sc	MPH-201	Quantum Mechanics	4	1	0	60	60	100	21
3.	4 <sup>th</sup> /M.Sc	MPH-403	Dissertation	4	0	0	48	48	100	02
4.	2 <sup>nd</sup> /B.Tech (Civil Engg.)	BTPH-102	Engg. Physics Lab	0	0	4	48	48	100	30

**Semester-II (Aug-Dec 2015), Maharaja Ranjit Singh PTU Campus Bathinda (Punjab)**

5.	3 <sup>rd</sup> /M.Sc.	MPH-301	Atomic & Molecular Physics	4	1	0	70	70	100	21
6.	3 <sup>rd</sup> /M.Sc.	MPH-305	Materials Physics Lab	0	0	4	56	56	100	21
7.	1 <sup>st</sup> /B.Tech (Mech. Engg.)	BTPH-102	Engg. Physics lab	0	0	4	56	56		56
8.	2 <sup>nd</sup> /B.Tech (Mech. Engg.)	BTPH-101	Engg. Physics	3	1	0	56	56	100	60 (30 in two groups)

**Semester-III (Jan-June 2016), Maharaja Ranjit Singh PTU Campus Bathinda (Punjab)**

9.	4 <sup>th</sup> /M.Sc.	MPH-	PHYSICS OF	4	1	0	60	60	100	21
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		402	NANO-MATERIALS							
10.	2 <sup>nd</sup> /M.Sc	MPH-201	Quantum Mechanics	4	1	0	60	60	100	58
11.	4 <sup>th</sup> /M.Sc	MPH-403	Dissertation	4	0	.0	48	48	100	05
12.	2 <sup>nd</sup> /B.Tech (Civil Engg.)	BTPH-102	Engg. Physics Lab	0	0	4	48	48	100	30
<b>Semester-IV (Aug-Dec 2016), Guru Nanak College, Budhlada (Punjab)</b>										
13	1 <sup>st</sup> /M.Sc	P 1.1.3	Classical Electro-dynamics	4	0	0	50	50	100	35
14	1 <sup>st</sup> /M.Sc	P 1.1.5	Electronics-I	4	0	0	50	50	100	35
15.	1 <sup>st</sup> /M.Sc	P 1.1.6	Laboratory Practice	0	0	6	52	52	100	17
16.	1 <sup>st</sup> /M.Sc	P 1.1.6	Laboratory Practice	0	0	6	58	58	100	18
<b>Semester-V (Jan-May 2017), Guru Nanak College, Budhlada (Punjab)</b>										
17.	2 <sup>nd</sup> /M.Sc.	P 1.2.3	Quantum Mechanics-I	4	0	0	60	60	100	33
18.	6 <sup>th</sup> /B.Sc.	Paper A	Condensed Matter Physics	4	0	0	60	60	100	33
19.	1 <sup>st</sup> /M.Sc	P 1.1.6	Laboratory Practice	0	0	6	52	52	100	17
20.	1 <sup>st</sup> /M.Sc	P 1.1.6	Laboratory Practice	0	0	6	58	58	100	16
<b>Semester-VI (July-December 2017), Guru Nanak College, Budhlada (Punjab)</b>										
21.	1 <sup>st</sup> /M.ScI	P 1.1.3	Classical Electro-dynamics	4	0	0	50	50	100	35
22.	3 <sup>rd</sup> /M.ScII	P 2.1.1	Condensed Matter Physics	4	0	0	50	50	100	35
23.	3 <sup>rd</sup> /M.ScI	P 1.1.6	Laboratory Practice	0	0	6	52	52	100	17
24.	3 <sup>rd</sup> /M.ScI	P 1.1.6	Laboratory Practice	0	0	6	58	58	100	16
<b>Semester-VII (Jan-May 2018), Guru Nanak College, Budhlada (Punjab)</b>										
25.	2 <sup>nd</sup> /M.Sc.I	P 1.2.3	Quantum Mechanics-I	4	0	0	60	60	100	33
26.	4 <sup>th</sup> /M.Sc.II	P 2.2.1	Condensed Matter Physics	4	0	0	60	60	100	33
27.	2 <sup>nd</sup> /M.ScI	P 1.2.6	Laboratory Practice	0	0	6	52	52	100	17
28.	2 <sup>nd</sup> /M.ScI	P 1.2.6	Laboratory Practice	0	0	6	58	58	100	16
<b>Semester-VIII (Aug-Dec 2018), Guru Nanak College, Budhlada (Punjab)</b>										
29.	3 <sup>rd</sup> /B.ScIII	PaperC	Quantum Mechanics	0	0	6	55	55	100	116
30.	1 <sup>st</sup> /M.ScI	P 1.1.3	Classical Electro-dynamics	4	0	0	50	50	100	17
31.	3 <sup>rd</sup> /M.ScII	P 2.1.1	Condensed Matter Physics	4	0	0	50	50	100	33
32.	2 <sup>nd</sup> /M.ScI	P 1.2.6	Laboratory Practice	0	0	6	52	52	100	17
33.	2 <sup>nd</sup> /M.ScI	P 1.2.6	Laboratory Practice	0	0	6	58	58	100	16

**Semester-IX (Jan-May 2019), Guru Nanak College, Budhlada (Punjab)**

34.	2 <sup>nd</sup> /M.Sc.I	P 1.2.3	Quantum Mechanics-I	4	0	0	60	60	100	17
35.	4 <sup>th</sup> /M.Sc.II	P 2.2.1	Condensed Matter Physics	4	0	0	60	60	100	33
36.	2 <sup>nd</sup> /M.ScI	P 1.2.6	Laboratory Practice	0	0	6	52	52	100	17
37.	2 <sup>nd</sup> /M.ScI	P 1.2.6	Laboratory Practice	0	0	6	58	58	100	16

**PG (M.Sc.)Thesis Guided**

S. No.	Name of Student	Enrollment No. and Institute	Level & Year of Completion project	Title of Thesis
<b>In Year 2015</b>				
1.	Prabhjinder Singh	1314326 (GZS PTU Campus Bathinda)	M.Sc. Physics (2015)	Dielectric Investigations of ZnO doped Ferroelectric Liquid Crystal Composites
2	Shiv Prakash	1314329 (GZS PTU Campus Bathinda)	M.Sc. Physics (2015)	Electrical Responses of SWCNT doped Ferroelectric Liquid Crystals
<b>In Year 2016</b>				
3	Meha	1413949 (GZSCCET Bathinda)	M.Sc. Physics (2016)	Polarization Switching Analysis Of Carbon Nanotubes Doped Ferroelectric Liquid Crystal Composites
4	Pankaj Pal	1413950 (GZSCCET Bathinda)	M.Sc. Physics (2016)	Temperature Dependence of Molecular Switching in CNT's Doped Liquid Crystal Composites
5	Poonampreet Kaur	1413951 (GZSCCET Bathinda)	M.Sc. Physics (2016)	Analysis Of Memory Effects In Chiral Doped Liquid Crystal Using Photoluminescence Spectroscopy
6	SUKHPREET KAUR	1413954 (GZSCCET Bathinda)	M.Sc. Physics (2016)	Synthesis And Characterization Of Silica Nanoparticles Doped PVA/NaNO <sub>2</sub> Nano-Composite Films
7	RAMANDEEP KAUR	1413952 (GZSCCET Bathinda)	M.Sc. Physics (2016)	Electrical investigations of silica nanoparticles doped PVA/NaNO <sub>2</sub> composite films

**Dealing with Equipments During Research**

Operated and handled major equipments in Material Research Lab during the investigations in UGC major research project/PhD:-

Sr. No.	Instrument Name	Purposes	Company
1.	Polarizing Optical	Morphology Analysis	Olympus (BX-51), Carl Zeiss



	Microscope		
2.	LCR Bridge	Dielectric Analysis	Fluke, Agilent
3.	Hot Stage	Thermal Analysis	Linkam (TP94, THMS 600)
4.	FTIR Spectrophotometer	Chemical Bond Analysis	Perkin Elmer
5.	Fluorescence Spectrophotometer	Optical Properties	Agilent Technologies
6.	DSC	Thermal Analysis	Liensis
<b>Equipment Used For Materials Characterization (Not Handled)</b>			
7.	Scanning Electron Microscope (SEM)	Morphology Analysis	Model: JEOL JSM-6510LV
8.	Tunneling Electron Microscope (TEM)	Morphology Analysis	Carl Zeiss
9.	UV-Vis Spectrophotometer	Optical Properties	Perkin Elmer
10	Electro-optic Setup	Electrical Properties	Multi-components

**Short Term Courses/Workshop/Faculty Development Program Attended**

Sr. No.	Title	Place	Date	Sponsorship
1.	Soft Matter Chemistry Workshop	Raman Research Institute, Bangalore	9-11 Nov. 2011	RRI
2.	TEQIP II Sponsored Short Term Course on Recent Trends in Advanced Materials and Computational Techniques	NIT Jalandhar	11-15 March 2013 (one week)	TEQIP II
3.	TEQIP II Sponsored Short Term Course on Emerging Trends in Physics and Information Technology	NIT Jalandhar	10-14 June 2013 (one week)	TEQIP II
4.	Technological And Chemical Innovation In Molecular Imaging Paving The Way To Personalized Health Care	Giani Zail Singh PTU Campus Bathinda	17 <sup>th</sup> April 2015	TEQIP II
5.	Green and Energy Efficient Buildings through ICT	Civil Engg. Deptt., GZSCCET, MRSSTU, Bathinda	29 Feb to 4 <sup>th</sup> March 2016 (one week)	AICTE
6.	Plant Breedings Approach for Seed Production in Agriculture Crops & Recent Trends in Food Processing	Guru Nanak College, Budhlada	01-02 <sup>nd</sup> March 2017 (Two days)	NABARD

7.	Faculty Development Program	Guru Nanak College, Budhlada	(one week)	IQUAC GNC
8.	Focus on Peer review	Nature Masterclasses (online Course)	Completed on 13 <sup>th</sup> October 2017	Springer Nature Journal
9.	Free Sample	Nature Masterclasses (online Course)	Completed on 12 <sup>th</sup> October 2017	Springer Nature Journal
10.	Faculty Development Programme On “Recent Advancements In Materials, Manufacturing And Safety”	Giani Zail Singh Campus College Of Engineering & Technology MRSPTU, Bathinda	(One week) 25 <sup>th</sup> – 30 <sup>th</sup> June 2018	Indian Society for Technical Education (ISTE) & AICTE
11.	121 <sup>st</sup> Orientation Course	HRDC, Punjab University, Chandigarh	11 <sup>th</sup> December 2018 to 07 <sup>th</sup> Jan 2019 (28 days)	UGC-HRDC
12.	Nanomaterials and Devices	NITTTR Chandigarh	(One week) 27 <sup>th</sup> April to 1 <sup>st</sup> May 2020	AICTE & MHRD, Govt. of India
13.	Quantum and Energy Materials: Potential & Applications	NITTTR Chandigarh	(One week) 4 <sup>th</sup> May to 8 <sup>th</sup> May 2020	AICTE & MHRD, Govt. of India
14.	Nanomaterials and Devices	NITTTR Chandigarh	(One week) 24 <sup>th</sup> to 28 <sup>st</sup> May 2020	AICTE & MHRD, Govt. of India

### **National Conferences Attended**

1. UGC, DST, CSIR sponsored National conference on Nanomaterials: Synthesis and applications (Nano-09) on 6-7 Feb. 2009.
2. UGC sponsored National conference on Nanoscience and Nanotech. –A revolution discipline organized by HMV College, Jalandhar on dated 9-10 Aug 2010.
3. 22<sup>nd</sup> MRSI AGM-2011 meeting at Bhopal organized by Material Research Society of India on dated 14-16 February 2011.
4. Advanced in chemical engineering ACHEM- 2011, Thapar University, Patiala on dated 26<sup>th</sup> -28<sup>th</sup> February 2011.
5. 23<sup>rd</sup> MRSI AGM-2012 at Thapar University, Patiala by Material Research Society of India on dated 14-16 February 2012.
6. National conference on material science organized by DAV College Jalandhar on dated 2-3 March 2012.
7. 19<sup>th</sup> National Conference on Liquid Crystal, Thapar University, Patiala on dated 21-23 November 2012.
8. 3<sup>rd</sup> national conference on advanced materials and radiation physics (AMRP-2013), SLIET Longowal on dated 22-23 November 2013.
9. DAV national congress on science and technology, DAVIET, Jalandhar on dated 30-31 May 2013.
10. TEQIP-II sponsored National Conference on Latest development in materials, manufacturing and quality control organized by GZS PTU Campus, Bathinda on dated 19-20<sup>th</sup> Feb 2015.
11. Responsible Research and Innovations in Science and Technology (RRIST-2017) organized by Department of Chemistry, Guru Nanak College, Budhlada.
12. Responsible Research and Innovations in Science and Technology (RRIST-2020) organized by Department of Chemistry, Guru Nanak College, Budhlada.
13. Attended TEQIP-III sponsored seminar on “Modes of Teaching and Learning in Lockdown” held on 11<sup>th</sup> May 2020, organized by Swayam, NPTEL, Local Chapter, Guru Nanak Dev Engineering College, Ludhiana.
14. Attended webinar on “Online Teaching and effective Learning: Bridging the gap” held on 23<sup>th</sup> May 2020, organized by Society of materials and mechanical engineers, MRSPTU Bathinda

### International Conferences Attended

1. International Conference on Advances in Condensed and Nano Materials (ICACNM-2011) organized by Punjab Univ. Chandigarh on dated Feb 22-26, 2011.
2. International Workshop on Soft Matter Chemistry, *RRI Bangalore* on dated 9-11 November 2011.
3. International Conference on Recent Trends in Applied Physics and Materials Science (RAM 2013) organized by Govt. college of engineering and Tech. Bikaner, on dated Feb 01-02, 2013.
4. 58<sup>th</sup> DAE Solid State Symposium at Thapar University, Patiala on 17-21 December 2013.
5. DAE-BRNC Conference on Organic device ODeFA-2014 organized by BARC Mumbai on dated 3-6 March 2014.
6. International conference on Electron Microscopy (EMSI-2014) organized by University of Delhi, New Delhi on dated 9-11 July 2014
7. Indo UK Workshop on Sustainable polymer applications organized by Thapar University, Patiala on 8-9 December 2015.
8. TEQIP II sponsored International conference on Latest Development in Materials, Manufacturing and Quality Control organized by Giani Zail Singh CCET Bathinda on dated 12<sup>th</sup> -13<sup>th</sup> Feb 2016.

### List of International/National Journal Publications

Sr. No.	Authors	Title	Journal Name	Volume and Page	Year of Publication	ISSN No.
1	<u>Rishi Kumar</u> and K.K.Raina	Optical and Electrical Control of Circularly Polarized Fluorescence in CdSe Quantum Dots Dispersed Polymer Stabilized Cholesteric Liquid Crystal Shutter	Liquid Crystals <b>(International)</b>	43, 994-1001	2016	0267-8292 (Print), 1366-5855 (Online)
2	<u>Manju Middha,</u> <u>Rishi Kumar</u> and K.K.Raina	Improved electro-optical response of induced chiral nematic liquid crystal doped with multi walled carbon nanotubes	Ferroelectrics <b>(International)</b>	495, 75-86	2016	0015-0193 (Print), 1563-5112 (Online)
3.	<u>Manju Middha,</u> <u>Rishi Kumar</u> and K.K.Raina	Photoluminescence Tuning and Electro-optical Memory in Chiral Nematic Liquid Crystals Doped with Silver Nanoparticles	Liquid Crystals <b>(International)</b>	43, 1002-1008	2016	0267-8292 (Print), 1366-5855 (Online)
4.	Manju Middha, <u>Rishi Kumar</u> and K.K.Raina	Effects of Chirality on Optical and Electro-optic Behaviour of Nematic Liquid Crystals Doped with Functionalized Silver Nanoparticles	Journal of Molecular Liquid <b>(International)</b>	219, 631-636	2016	0167-7322
5.	<u>Rishi Kumar</u> and K.K.Raina	Polarization Switching and Molecular Relaxation Behavior of Anthraquinone Dye Dispersed Polymer Stabilized Ferroelectric Liquid Crystal Composites.	Liquid Crystals <b>(International)</b>	42,p18-23	2015	0267-8292 (Print), 1366-5855 (Online)

6.	<u>Rishi Kumar</u> and K.K.Raina	Morphological Control and Switchable Photoluminescence Responses of Silica Nanoparticles Modified Polymer Dispersed Liquid Crystal Composite Films	Liquid Crystals <b>(International)</b>	42,119-126	2015	0267-8292 (Print), 1366-5855 (Online)
7.	Manju Middha, <u>Rishi Kumar</u> and K.K.Raina	Memory effects in chiral nematic liquid crystals doped with functionalized single walled carbon nano tubes	Liquid Crystals <b>(International)</b>	42, p1028-1035	2015	0267-8292 (Print), 1366-5855 (Online)
8.	Rishi Kumar, Pooja Goyal, Manju Middha, KK Raina	Morphological and dielectric relaxation responses of polymer stabilized ferroelectric liquid crystal composite films	<i>Journal of Thin Films, Coating Science Technology and Application</i> <b>(National)</b>	2(2); p1-5	2015	2455-3344
9.	Manju Middha, <u>Rishi Kumar</u> and K.K.Raina	Dielectric investigations of induced memory in chiral doped nematic liquid crystal	AIP Conference Proceedings <b>(International)</b>	1675, 030006(1-3)	2015	0094-243X
10.	<u>Rishi Kumar</u> and K.K.Raina	Electrically modulated fluorescence in optically active polymer stabilised cholesteric liquid crystal shutter	Liquid Crystals <b>(International)</b>	41, p228-233	2014	0267-8292 (Print), 1366-5855 (Online)
11.	<u>Rishi Kumar</u> and K.K.Raina	Enhanced ordering in polymer stabilised ferroelectric liquid crystal guest–host composites: evidence by polarised fluorescence spectroscopy	Liquid Crystals <b>(International)</b>	41, p694-700	2014	0267-8292 (Print), 1366-5855 (Online)
12.	Manoj Kr. Paul, <u>Rishi Kumar</u> , N. Chakraborty, K.K.Raina and Nandiraju V.S. Rao	Electro-optic and molecular relaxation behaviour of fluoro substituted achiral unsymmetrical four-ring bent-core mesogen	Liquid Crystals <b>(International)</b>	41, p635-641	2014	0267-8292 (Print), 1366-5855 (Online)
13.	<u>Rishi Kumar</u> , Srishti Sood, and K. K. Raina	Photoluminescence analysis of self induced planer alignment in azo dye dispersed nematic liquid crystal complex	AIP Conf. Proceed. <b>(International)</b>	1591, p 197-198	2014	0094-243X

14.	Manju Middha, <u>Rishi Kumar</u> , and K. K. Raina	Electrically tuned photoluminescence in large pitch cholesteric liquid crystal	AIP Conf. Proceed. <b>(International)</b>	1591, p 200-201	2014	0094-243X
15.	Hitesh Kumar Mehtani, <u>Rishi Kumar</u> , and K. K. Raina	Morphological characterization of phase in poly-(vinylidene fluoride) film prepared by spin cast method	AIP Conf. Proceed. <b>(International)</b>	1591, p 975-976	2014	0094-243X
16.	Supreet, <u>Rishi Kumar</u> , R. Pratibha, Sandeep Kumar, and K. K. Raina,	Gold nanoparticles in columnar matrix of discotic liquid crystal	AIP Conf. Proceed. <b>(International)</b>	1536, p 67-68	2013	0094-243X
17.	<u>Rishi Kumar</u> , Supreet and K.K.Raina	Morphological responses of polymer dispersed liquid crystal composites for photonic display applications	AIP Conf. Proceed. <b>(International)</b>	1536, p 743-744	2013	0094-243X
18.	<u>Rishi Kumar</u> and K.K.Raina	Polymer Stabilized Liquid Crystals: Materials, Physics and Applications	AIP Conf. Proceed. <b>(International)</b>	1393, p46-49	2011	0094-243X

### National Journal Publications

1. Rishi Kumar, Pooja Goyal, Manju Middha, KK Raina, “**Morphological and dielectric relaxation responses of polymer stabilized ferroelectric liquid crystal composite films.**” *Journal of Thin Films, Coating Science Technology and Application*. 2015; 2(2): 8-12.

### Full Paper Published in Conference Proceedings

Sr. No.	Authors	Title of paper presented	Title of Conference/Place of organized	Date of Conference /Type	ISBN No.	Page
1.	Rishi Kumar, Manju Middha K.K. Raina	Dielectric and optical investigations of induced memory in chiral doped nematic liquid crystals as function of frustration ratio	TEQIP II sponsored International conference on Latest Development in Materials, Manufacturing and Quality Control organized by Giani Zail Singh CCET Bathinda	12-13 <sup>th</sup> Feb 2016 <b>(International)</b>	ISBN No. 978-93-5196-055-3	390-393
2.	Rajpal Singh, Rishi Kumar, Gagan Gupta,	Solid Waste Management and Its Treatment	National Conference on Current Issues and Opportunities in Global Emerging	7-8 <sup>th</sup> April 2016	ISBN No. 978-93-5258-981-4	EVS 176 (159-171)

Mandeep Singh		Business Scenario by MRSPTU Bathinda		
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### **Book Published**

Sr. No.	Authors	Title of book	Publisher	Year of Publications	ISBN No.
1.	Rishi Kumar	Improved Liquid Crystal Properties with Development of Nanomaterials	LAMBERT ACEDAMIC PUBLISHING, GERMANY (International)	2016	978-3-659-90871-2
2.	Rishi Kumar	Liquid Crystals and Carbon Nanotubes	LAMBERT ACEDAMIC PUBLISHING, GERMANY (International)	2017	978-3-330-05805-7
3.	Sonik Bhatia, Gurpreet Singh, Rishi Kumar	Kapila's Optics	Kapila Publications, Jalandhar-Delhi (National)	2017	978-93-86655-11-0

### **List of Paper Presented in National/International Conferences (Abstracts)**

Sr. No.	Authors	Title of paper presented	Title of Conference/Place of organized	Date of Conference /Type	Page	Proof attached
1.	K.K.Raina and Rishi Kumar	Opto-Electronic Behavior of Polymer Dispersed Liquid Crystal Composite Systems: Key to Functional Materials for display devices	11 <sup>th</sup> International conference on frontiers of polymer and advanced materials, IIT DELHI	15 <sup>th</sup> -17 <sup>th</sup> December 2010 (International)	44	
2.	Rishi Kumar and K.K.Raina	A novel approach to Electro-optic and Thermo-chromic behavior of Polymer Stabilized Liquid Crystal composite film	22 <sup>nd</sup> MRSI AGM-2011, Bhopal	14-16 February 2011	L-13	
3.	Rishi Kumar and K.K.Raina	Polymer-Liquid Crystal Composite Systems: Novel Materials for High Contrast and Switchable Opto-Electronic Devices	Advanced in chemical engineering ACHEM-2011, Thapar University, Patiala	26 <sup>th</sup> -28 <sup>th</sup> February 2011	597	
4.	Rishi Kumar and K.K.Raina	Morphology and Responses of Polymer-Liquid Crystal composites	International Conference on Electron Nanoscopy & XXXII Annual Meeting of EMSI, Hyderabad	6-8 July 2011 (International)		
5.	Rishi Kumar and K.K.Raina	Optical Enhancement Investigations of Polymer Stabilized and Guest-Host Liquid Crystals	International Workshop on Soft Matter Chemistry, RRI Bangalore	9-11 November 2011 (International)	84	
6.	Gitanjali Dhir, Rishi Kumar and K.K.Raina	Anchoring Effects in Langmuir Blodgett Film of Nematic Liquid Crystal	International Workshop on Soft Matter Chemistry, RRI Bangalore	9-11 November 2011 (International)	83	
7.	Rishi Kumar and K.K.Raina	Polymer Dispersed Liquid Crystal Composites as an Opto-Electronic Shutter	16 <sup>th</sup> International workshop on physics of semiconductor devices, IIT Kanpur	19-22 December 2011 (International)	DL4	
8	Rishi Kumar and	Effect of Polymer viscosity on morphology and	23 <sup>rd</sup> MRSI AGM-2011, Thapar University,	14-16 February 2012	153	

	<i>K.K.Raina</i>	dielectric Relaxation behavior of Polymer stabilized FLC Composite Films	Patiala			
9.	<i>K.K.Raina and Rishi Kumar</i>	Guest- Host Polymer Stabilized Ferroelectric Liquid Crystals: Materials, Physics and Applications	National Conference on Advances in Physics organized by IIT Roorkee	25-26 Feb.2012		
10	<i>Rishi Kumar and K.K.Raina</i>	Progress in Liquid Crystal Composite Films	National conference on material science organized by DAV College Jalandhar	2-3 March 2012	55	
11.	<i>Rishi Kumar and K.K.Raina</i>	Threshold Dependence of Different Sized Nematic Liquid Crystal Droplets	National Conference on Functional Materials NCFM-2012, G.V.M. Girls College, Sonapat	24-25 September 2012	42	
12.	<i>Rishi Kumar, Rohit Kumar and K.K.Raina,</i>	Structural Improvements in Liquid Crystal Based Electro-Optic Film	19 <sup>th</sup> National Conference on Liquid Crystal, Thapar University, Patiala	21-23 November 2012	67	
13.	Manju Middha, Rishi Kumar and K.K.Raina	Kerr constant as a measure of molecular anisotropy: an overview	19 <sup>th</sup> National Conference on Liquid Crystal, Thapar University, Patiala	21-23 November 2012	95	
14.	<i>Rishi Kumar and K.K.Raina</i>	A New Reflective Twisted Nematic Liquid Crystal Display	16 <sup>th</sup> Punjab Science Congress, Baba Farid University of Health Science, Faridkot	7-9 February 2013	194	
15.	<i>Rishi Kumar, Rohit Kumar and K.K.Raina</i>	Optical investigation of CdSe nanoparticles dispersed phase separated composite film irradiated with UV light	3 <sup>rd</sup> national conference on advanced materials and radiation physics (AMRP-2013), SLIET Longowal	22-23 November 2013	53	
16.	<i>Hitesh Kumar Mehtani, Rishi Kumar, and K.K.Raina</i>	Charachterization of functionalized MWCNT dispersed PVDF nanocomposite membrane	3 <sup>rd</sup> national conference on advanced materials and radiation physics (AMRP-2013), SLIET Longowal	22-23 November 2013	55	
17.	Manju Middha, Rishi Kumar and K.K. Raina	Investigation of optical contrast of CLC with fluorescence spectrophotometer	DAV national congress on science and technology, DAVIET, Jalandhar	30-31 May 2013	20	
18.	Rohit Kumar, Rishi Kumar and K.K. Raina	Synthesis, characterization and growth kinetic of TGA capped CdSe quantum dots	DAV national congress on science and technology, DAVIET, Jalandhar	30-31 May 2013	31	
19.	Rishi Kumar, Srishti Sood and K.K. Raina	Self sustained planer and homeotropic alignment in azo dye doped nematic liquid crystals	DAV national congress on science and technology, DAVIET, Jalandhar	30-31 May 2013	31	
20.	Rishi Kumar and K.K. Raina	Improvement in PL contrast of PDNLC composite films doped with silica nanoparticles	DAE-BRNC Conference on Organic device ODeFA-2014	3-6 March 2014 <b>(International)</b>	98	
21.	Rishi Kumar	Morphological and Opto-	International	9-11 March	73	

	and K.K. Raina	electronic Response of Silica nano-particle Modified Polymer -Liquid Crystal Composites	conference on Electron Microscopy (EMSI-2014), University of Delhi	2014		
22.	Hitesh Kumar Mehtani, Rishi Kumar K.K. Raina	Microstructure Analysis of -COOH Functionalized Multi-Walled CNT - PVDF Composites	International conference on Electron Microscopy (EMSI-2014), University of Delhi	9-11 March 2014	348	
23.	Rishi Kumar K.K. Raina	Influence of epoxy polymer on dielectric molecular relaxation behaviour of polymer stabilized ferroelectric liquid crystal composite films	TEQIP-II Sponsored National Conference on —Latest Developments in Materials, Manufacturing and Quality Control , Giani Zail Singh PTU Campus Bathinda	19-20 <sup>th</sup> Feb. 2015	40	
24.	Rishi Kumar, Manju Middha K.K. Raina	Improved morphological and electrical responses of PVDF films doped with MWCNT	Indo UK Workshop on Sustainable polymer applications by Thapar University, Patiala	8-9 <sup>th</sup> December 2015 <b>(International)</b>		
25.	Rishi Kumar, Manju Middha K.K. Raina	Dielectric and optical investigations of induced memory in chiral doped nematic liquid crystals as function of frustration ratio	TEQIP II sponsored International conference on Latest Development in Materials, Manufacturing and Quality Control organized by Giani Zail Singh CCET Bathinda	12-13 <sup>th</sup> Feb 2016 <b>(International)</b>	ISBN No. 978-93-5196-055-3	
26.	Rajpal Singh, Rishi Kumar, Gagan Gupta, Mandeep Singh	Solid Waste Management and Its Treatment	National Conference on Current Issues and Opportunities in Global Emerging Business Scenario by MRSPTU Bathinda	7-8 <sup>th</sup> April 2016	ISBN No. 978-93-5258-981-4	
27.	Rishi Kumar	Impact Of Silica Nanoparticles Doping On Performance Of Electro-Optic Switchable Shutter	Responsible Research and Innovations in Science and Technology (RRIST-2017)" Guru Nanak College, Budhlada	18 <sup>th</sup> March 2017	IST-51, Page 58	
28.	Manju Middha Rishi Kumar and K.K. Raina	Photoluminescence Tuning And Electro-Optical Memory In Chiral Nematic Liquid Crystals Doped With Silver Nanoparticles	Responsible Research and Innovations in Science and Technology (RRIST-2017)" Guru Nanak College, Budhlada	18 <sup>th</sup> March 2017	IST-41 Page 47	
29.	Meha Mittal And Rishi Kumar	Electro-Optic Investigation Of Single Walled Carbon Nano Tubes Doped Ferroelectric Liquid Crystal Composites	Responsible Research and Innovations in Science and Technology (RRIST-2017)" Guru Nanak College, Budhlada	18 <sup>th</sup> March 2017	IST-42 Page 48	
30.	Rishi Kumar	Electro-optic switching response of silica nanoparticles doped Polymer dispersed liquid crystal shutter	National conference on recent advances in Materials science & Technology by Amity University Gurgaon	21 <sup>st</sup> April 2017		



**PERSONAL DETAILS**

*Name* : *Dr. Rishi Kumar*

*Father's Name* : *Sh. Ashwani Kumar*

*D.O.B.* : *12-08-1986*

*Permanent Address* : *Near Joshian Street,  
Jourian Chakkian  
Kot Kapura-151204  
Dist. Faridkot (Punjab)  
Ph. 9464192801*

*Marital Status* : *Married*

*E-Mail* : [rishikumar.phd@gmail.com](mailto:rishikumar.phd@gmail.com)

I, hereby declare the information given above, is true to the best of my knowledge.

*Dr. Rishi Kumar*  
*Date: 09/06/2020*