

Dr.N. Karunagaran, M.Sc., M.Phill., Ph.D

**Assistant Professor,
Department of Physics,
SRM Institute of Science and Technology
Ramapuram Campus, Chennai
E-mail: karunagn@srmist.edu.in
Scopus ID: [54795310700](#)
ORCID: [0000-0003-2863-89](#)**



EDUCATION QUALIFICATION

Ph.D Crystal Growth, 2010-2016, **Anna University**, India.

M.Phill Physics, **Bharathidasan University**, Thiruchirapalli, Tamil Nadu, 2008-2009
India.

M.Sc Physics, **Bharathidasan University**, Thiruchirapalli, Tamil Nadu, 2004-2006
India.

Teaching Experience

Working as a Assistant professor in SRM Institute of Science and Technology, Ramapuram from 13-06-2018 to till date

Research Experience

Worked Post Doctoral Fellow in SSN Research Center, SSN College of Engineering, Kalavakkam from 01-09-2016 to 12-06-2018

Achievements/Awards

- **DST- Travel award (Young scientist) to attend International conference on POLISH SOCIETY FOR CRYSTAL GROWTH** to be held in POLAND,POLAND from 16-10-2016 to 21-10-2016.
- **Best ORAL** paper presentation award in XVIII National Conference on National Seminar on Crystal Growth Organized by SSN College of Engineering, Kalavakkam during 24-26 February 2014.
- **Winner of the Crystal Growth Activities Session** in SERC School On Nonlinear Optics & Materials Organized by SSN College of Engineering, Kalavakkam during 03rd to 21st February 2014.
- **Best ORAL** paper presentation award in National conference on Advanced Technology Oriented Materials organized by Department of Physics, Government College, Rajahmundry, Andhra Pradesh during 8-9 December, 2014.

- **Best ORAL** paper presentation award in One Day National level seminar on Recent advancements in Material Physics organized by Department of Physics, Divya Arts and Science college for Women, 27 March 2015.
- **Best ORAL** paper presentation award in National conference on emerging Trends in materials and methods by Department of Physics, KSR college of Arts and Science, Tiruchengode 7th October 2015.

LIST OF PUBLICATIONS IN REFEREED JOURNALS

1. P. Elaiyaraja; **Karunagaran Natarajan**, 2023, “An orthorhombic pseudo-cubic phase transition by approaching the Landau symmetrical impact of piezoelectric and ferroelectric properties in novel NaNbO₃-based solid solutions” Journal of Materials Research, 38, pages 2463–2473 (2023).
<https://link.springer.com/article/10.1557/s43578-023-00976-0>
2. A. Selestina; L. Sudha; V. Vijay; **N. Karunagaran**; Mani Navaneethan , 2023, Enhanced thermoelectric power factor of Se-doped SnS nanostructures for flexible thermoelectric applications, Journal of Materials Science: Materials in Electronics 34, 255 (2023)
<https://link.springer.com/article/10.1007/s10854-022-09489-8>
3. G. Sudha; **Karunagaran Natarajan**; K. Aravinth, 2023, “Study of structural and microstructural contributions to the optical and dielectric properties of NBBT binary relaxor composites substituted with trivalent and non-magnetic ions” Materials Chemistry and Physics, Volume 294, 15 January 2023, 127045
<https://www.sciencedirect.com/science/article/abs/pii/S0254058422013517?via%3Dihub>
4. G. Sudha; P. Elaiyaraja; **Karunagaran Natarajan** , 2022, “Correlation between structural, luminescence, and dielectric properties of novel Sm³⁺ and trioxotungsten-doped NBBT ceramic system for multifunctional device applications” Journal of Materials Science: Materials in Electronics, 33, pages 25532–25550 (2022)
<https://link.springer.com/article/10.1007/s10854-022-09253-y>
5. **Karunagaran Natarajan**; R. Nagaraj; R. Vijayakumar; N. Karunagaran; Arumugam Raja; S. Ranjith, 2022, “Realizing enhanced down-conversion photoluminescence and Judd–Ofelt parameters of novel reddish-orange emitting KBaScSi₃O₉:xSm³⁺ silicate phosphors” Materials Science and Engineering: B, Volume 276, February 2022, 115537
<https://www.sciencedirect.com/science/article/abs/pii/S092151072100492X?via%3Dihub>
6. P. Vivek; M. Rekha; ANANTH STEEPHEN; RO. MU. Jauhar; G. Saravana Kumar; A. Suvitha; **N. Karunagaran**; M. Kowsalya, 2021, “Nonlinear optical crystalline nature bis (2,6-diaminopyridinium) hydrogen phthalate nitrate monohydrate (APPN): Development and its phase matching nature” Results in Optics, Volume 3, May 2021, 100075.
<https://www.sciencedirect.com/science/article/pii/S2666950121000237?via%3Dihub>

7. P. Vivek, A. Suvitha, RO. MU. Jauhar, Ananth Steephen, R. Arunkumar, **N. Karunagaran**, M. Kowsalya & M. Rekha, 2020, "Determination of SHG deff by Maker fringes studies on unidirectional grown guanidinium chlorochromate single crystal for NLO device applications", *Journal of Optics*, 50, pages 77–82 (2021).
<https://link.springer.com/article/10.1007/s12596-020-00664-w>
8. P. Vivek, G. Saravana Kumar, Ananth Steephen, RO. MU. Jauhar, A. Suvitha, M. Rekha, M. Kowsalya, **N. Karunagaran** & R. Arunkumar, 2021, "Development of organic crystalline nature guanidinium nitrate (GuN): structural, frontier molecular orbital, optical, thermal, mechanical, theoretical and experimental SHG and Z-scan properties for NLO device uses" *Journal of Materials Science: Materials in Electronics* volume 32, pages 4493–4504 (2021).
<https://link.springer.com/article/10.1007/s10854-020-05190-w>
9. V. Mohankumar, **N. Karunagaran**, M. Senthil Pandian and P. Ramasamy, 2020, "Density functional theory calculations and Hirshfeld surface analysis of propyl-para-hydroxybenzoate (PHB) for optoelectronic application" *Journal of Materials Science-Poland*, [Volume 38 \(2020\): Issue 3](https://doi.org/10.2478/msp-2020-0046).
<https://doi.org/10.2478/msp-2020-0046>
10. **N. Karunagaran** and P. Ramasamy, 2018, "Investigation on synthesis, growth, structure and physical properties of AgGa_{0.5}In_{0.5}S₂ single crystals for Mid-IR application" *Journal of Crystal Growth*, [Volume 483](https://doi.org/10.1016/j.jcrysgro.2018.01.011), 1 February 2018, Pages 169-174.
<https://www.sciencedirect.com/science/article/abs/pii/S0022024817306991?via%3Dihub>
11. **Karunagaran, N** & Ramasamy, P 2016, 'Synthesis, growth and physical properties of silver gallium sulfide single crystals', *Materials Science in Semiconductor Processing*, vol.41, pp.54-58.
<https://www.sciencedirect.com/science/article/abs/pii/S1369800115301426?via%3Dihub>
12. **N. Karunagaran**, P. Ramasamy, 2015, "Synthesis, growth and characterizations of AgGaS₂ single crystals" *AIP Conference Proceedings* 1665, 100015 (2015).
13. **Karunagaran, N** & Ramasamy, 2015, "Synthesis, growth and characterization of AgInSe₂ single crystals" *Materials Science in Semiconductor Processing*, [Volume 40](https://doi.org/10.1016/j.mssp.2015.12.011), December 2015, Pages 591-595.
<https://www.sciencedirect.com/science/article/abs/pii/S1369800115300755?via%3Dihub>
14. **Karunagaran, N**, **Perumal Ramasamy, R** & Ramasamy, P 2014, 'Growth of propyl-p-hydroxybenzoate single crystal and its characterization', *Bull. Mater. Sci.*, vol. 37, no. 6, pp. 1461-1469.
15. **Karunagaran, N** & Ramasamy, P 2013, 'Growth and optical property of methyl para hydroxybenzoate sodium dihydrate single crystals', *AIP Conf. Proc.* vol.1536, pp.887.
16. **Karunagaran, N** & Ramasamy, P 2012, 'Growth of propyl-p-hydroxybenzoate single crystals and its characterizations', *AIP Conf. Proc.* vol.1447, pp.1291 .
17. Anandha babu, G, Subramaniyan Raja, R, Ramasamy, P and **Karunagaran, N** 2012, 'Growth improvement and characterization of AgGaSe₂ chalcopyrite single crystals using Bridgman technique', *AIP Conf. Proc.* vol.1447, pp.1045.

18. **Karunakaran, N**& Ramasamy, P 2012, 'Growth of Ethyl-para-hydroxybenzoate single crystal and its characterization', Journal of Advanced Materials Research, vol. 584, pp. 121-125.

19. Anandha Babu, G, Subramaniyan@Raja, R, **Karunakaran, N**, Perumal Ramasamy, R, Ramasamy, P, Ganesamoorthy, S &. Gupta, PK 2012, 'Growth improvement of AgGaSe₂ single crystal using the vertical Bridgman technique with steady ampoule rotation and its characterization', Journal of Crystal Growth, vol. 338, Issue 1, pp. 42-46.

Papers presented in National Conferences

1. **Karunakaran, N**& Ramasamy, P 2011, 'Growth and physical properties of Ethyl-para-hydroxybenzoate single crystals', National Conference on Advanced Research Concepts in Physics, Organized by Department of Physics, at Government College, Rajahmundry.
2. **Karunakaran, N**& Ramasamy, P 2011, 'Growth of propyl-p-hydroxybenzoate single crystal and its characterization', 40th National Seminar on Crystallography, Organized by Department of Physics, Osmania University, Hyderabad.
3. **Karunakaran, N**& Ramasamy, P 2011, 'Growth Of Propyl-p-Hydroxybenzoate Single Crystals And Its Characterizations', 56th DAE Solid State Physics Symposium, Organized by SRM University, Kattankulathur.
4. **Karunakaran, N**& Ramasamy, P 2012, 'Growth and physical properties of Ethyl-para-hydroxybenzoate single crystals', XVI National Seminar on Crystal Growth, Organized by Aditanar College of Arts and Science, Tiruchendur.
5. **Karunakaran, N**& Ramasamy, P 2012, 'Growth and physical properties of Ethyl-para-hydroxybenzoate single crystals', Recent Trends in materials science, Organized by Department of Physics, K. S. R college of Technology, Tiruchengode.
6. **Karunakaran, N**& Ramasamy, P 2013, 'Growth of AgGaS₂ single crystals by vertical Bridgman technique using graphite crucible', XVII National Seminar on Crystal Growth, Organized by Department of Physics, Anna University, Chennai.
7. **Karunakaran, N**& Ramasamy, P 2013, 'Optical and spectral properties of Ethyl-para-hydroxybenzoate single crystals', 58th DAE Solid State Physics Symposium Organized by Thapar University, Patiala.
8. **Karunakaran, N**& Ramasamy, P 2014, Crystal growth, 'Synthesis and Optical properties of Methyl Parahydroxybenzoate Sodium Dihydrate single crystals', DAE-BRNS National Laser Symposim-22 organized by Department of Atomic and Molecular Physics, MIT, Manipal University, Manipal.
9. **Karunakaran, N**& Ramasamy, P 2014, 'Synthesis, growth and characterization of AgGaS₂ single crystals grown by vertical Bridgman technique XVIII National Seminar

on Crystal Growth', Organized by Centre for Crystal Growth, SSN College of Engineering, Kalavakkam.

10. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis and growth of AgGaS₂ single crystal and its characterization', II National Conference on "Hierarchically Structured Materials (NCHSM 2014)" Organized by SRM University, Chennai.
11. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis and growth of AgGaS₂ single crystal for Mid-IR application', National conference on advanced materials 2014, Organized by Sri Vidya Mandir Arts and Science College, Uthangarai.
12. **Karunagaran, N& Ramasamy, P** 2014, 'Growth and characterization of AgGaS₂ single crystal for Mid-IR application', Recent trends in Crystal growth and Nano materials (NSCGNM 2014), Organized by National College, Tiruchirapalli.
13. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis and growth of AgInSe₂ single crystal and its characterization', Second National conference on Recent advances in materials (NCRAM-2014), Organized by B. S Abdur Rahman University, Chennai.
14. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis and growth of AgGaS₂ single crystal for Mid-IR application', National conference on advanced materials 2014, Organized by Sree Kerla Varma College, Thrissur.
15. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis, Growth And Characterizations Of AgGaS₂ Single Crystals', DAE-BRNS National Laser Symposium-23 organized by Sri Venkateswara University, Tirupathi.
16. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis, Growth And Characterizations Of AgGaS₂ Single Crystals', 59th DAE Solid State Physics Symposium Organized by VIT University, Vellore.
17. **Karunagaran, N& Ramasamy, P** 2014, 'Growth and characterization of AgInSe₂ single crystal for Mid-IR application', National Conference on advanced Technology Oriented Materials-2014, Organized by Government College, Rajamundry.
18. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis, Growth And Characterizations Of AgGaS₂ Single Crystals', 59th DAE Solid State Physics Symposium Organized by VIT University, Vellore.
19. **Karunagaran, N& Ramasamy, P** 2015, 'Investigation on Synthesize, Growth and physical characterization of AgGa_{0.5}In_{0.5}S₂ single crystal for Mid-IR applications', XIX National seminar on crystal growth, Organized by VIT University, Vellore.
20. **Karunagaran, N& Ramasamy, P** 2015, 'Synthesis, Growth And Characterizations Of AgGaS₂ Single Crystals for Mid-IR applications', Recent advancements in materials physics, Organized by Dhiya Arts & Science college for Women, Chetpet.

Papers presented in International Conferences

1. **Karunagaran, N& Ramasamy, P** 2012, 'Growth of Ethyl-para-hydroxybenzoate singlecrystals and its characterization', International conference on Recent Trends in Advanced Materials Organized by School of Advanced sciences, VIT University, Vellore.
2. **Karunagaran, N& Ramasamy, P** 2013, 'Growth And Optical Property Of Methyl Para Hydroxybenzoate Sodium Dihydrate Single Crystals', International conference on Recent Trends in Applied Physics & Material science, Organized by Government college of Engineering and Technology, Bikaner.
3. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis and growth of AgGaS₂ single crystal for Mid-IR application', International conference on Materials and Characterization Techniques, Organized by VIT University, Vellore.
4. **Karunagaran, N& Ramasamy, P** 2014, 'Synthesis and growth of AgGaS₂ single crystal for Mid-IR application', International conference on Crystal growth and Biomolecular Crystallography, Organized by Sastra University, Thanjavur.
5. **Karunagaran, N& Ramasamy, P** 2014, 'Growth and characterization of AgInSe₂ single crystal for Mid-IR application', International conference on International Intradisciplinary Conference on the Frontiers of Crystallography, Organized by Field Marshal K. M Cariappa College, Madikeri.
6. **Karunagaran, N& Ramasamy, P**, 2016, 'Investigations on Synthesis, Growth and physical properties of AgGa_{0.5}In_{0.5}S₂ single crystals for MID-IR application' 10th International Conference of Polish Society for Crystal Growth, Organized by Polish Society for Crystal Growth, Zakopane, Poland.

List of International/ National Workshops, Schools Attended

- **SERC School On Laser Physics & Technology** Organized by Raja Ramanna Centre for Advanced Technology(RRCAT), Indore during 12th to 30th March 2012.
- **NRB Research Dissemination Workshop on Titanium Matrix Composites** Organized by Department of Metallurgical and Materials Engineering, IIT Madras.
- "Terahertz Physics" conducted by "Indian Laser Association" on 6-7 January, 2014 at Manipal University, Manipal.
- **Workshop on Materials Characterization Techniques (WMCT-2014)** organized by Department of Physics, SSN College of Engineering, Kalavakkam-603110.
- **SERC School On Nonlinear Optics & Materials** Organized by SSN College of Engineering, Kalavakkam during 03rd to 21st February 2014.