CURRICULUM VITAE

Dr.T.KANAGASEKARAN M.Sc., Ph.D.
Assistant Professor
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Educational Qualifications

Ph.D. **Physics : Materials Science – 2008** (Guide Prof. R.Gopalakrishnan).
Dept. of Physics, Anna University, Chennai-600 025, Tamilnadu, India.
`Studies of Nucleation kinetics, Growth, Characterization and Irradiation effects of meta-Nitroaniline, Benzimidazole and Benzil single crystals`

M.Sc. **Physics : 2002**
National college, (Bharathidasan University), Trichy, Tamilnadu, India.

Professional Experience

Position	Period	Place of work	Assignments
Assistant Professor	27-12-2018 to till date	Department of Physics, IISER Tirupati.	Research and Teaching
Assistant Professor	April 2017 to Dec. 2018	Device Physics Group, AIMR, Tohoku University, Sendai, Japan	Research & Guide student`s research
Research Associate	Sep. 2012 to March 2017	Same as above	Same as above
JSPS postdoctoral Fellow	June 2010 to Aug. 2012	Department of Physics, Tohoku University, Sendai, Japan	Research
Visiting Scientist	July 2009 to May 2010	Electronic Materials Research centre, KIST, Seoul, South Korea.	Research
Dr.D.S.Kothari Fellow	June 2008 to May 2009	Department of Physics Univeristy of Delhi, India.	Research
Project Fellow IUAC-India)	April 2005 to March 2008	Department of Physics, Anna University, Chennai-600 025.	Research

Publication records

- Papers published in international journals : 34
- International Patents filed : 2
- Papers communicated to international journals : 2
- Papers presented at international conferences : 20
- Papers presented at national conferences : 25

Research Interest

Organic Opto-electronics – Organic Light Emitting Field Effect Transistor (OLE-FET)

The main research interest is the fabrication of OLE-FET`s to invent the electric driven organic semiconductor laser. The film like organic single crystals grown by physical vapor transport (PVT) method used as a laser gain medium.

The other research interests are various thin film deposition methods like chemical vapor deposition (CVD), spin coating or dip coating; growth of organic single crystals by physical vapor transport (PVT), Vertical Bridgman/ Czochralski/high and low temperature solution growth method. Growth and characterization of Nano, Micro and single crystal Diamonds. Characterization of organic/inorganic thinfilm/single crystals for electrical, optical and surface studies.

Awards and Honors (2006 to 2017)

- **Assistant Professor**, AIMR Tohoku Univeristy, Sendai, Japan.
- **Research Associate**, WPI-AIMR Tohoku Univeristy, Sendai, Japan.
- **Best poster presentation** award AIMR International Symposium (AMIS2017).
- **JSPS Fellow** – Department of Physics, Tohoku Univeristy, Japan.
- **Visiting Scientist** –Korea Institute of Science and Technology, South Korea.
- **Dr. D. S. Kothari Bridging Fellow** (UGC- India)- @ University of Delhi.
- **Project Fellow** – Inter University Accelerator Centre (UGC), New Delhi, India.
- **Best oral presentation** award in Indian Association for crystal Growth, India.

Countries worked/visited related to research

Japan, South Korea, USA, France, Singapore, Taiwan, Malaysia, China.

Research Collaboration National and International institutes

- Tohoku University – **Japan** (Dept. of Physics, Chemistry and Dept. of Biomedical engineering).
- Osaka Prefecture University- **Japan** (Dept. of Electrical Engineering).
- KIST- **South Korea** (Department of Solid state electronics).
- CNRS Lab – **France** (Depart. of Ceramic engineering).
- University Kebangsaan Malaysia- **Malaysia** (Solar Energy Research Institute).
- University of Johannesburg - **South Africa** (Dept. of Nano technology).
- Anna University – Chennai, India (Department of Physics and Chemistry).
- University of Delhi, India (Department of Physics).
- National Physical Laboratory (NPL), Delhi. India.
- Inter University Acceleration Centre (IUAC), Delhi. **India**.

Ph.D Thesis Examiner

- Bharathidasan University, Trichy.
- Bharathiar University, Coimbatore.

Research Grants

- Fusion research program - Realization of electrically driven organic laser by OLE-FETs. Year- 2015-2018, amount **Rs.40 Lakhs** by Tohoku University/MEXT Japan.
- Kakenhi Grant-in-Aid for Scientific Research (C) Project number 23510147. Construction of nanoscale optical resonator structure with an organic semiconductor single crystal, 2011-2013 amount, **Rs. 80 Lakhs** (Co-Investigator).
- Japan Society for the Promotion of Science (JSPS) early career postdoctoral fellows 2010 to 2012, Research advisor, Prof. Katsumi Tanigaki, Tohoku University, Japan, amount **Rs.60 Lakhs**.

  Dr. D. S. Kothari Fellow early carrier postdoctoral fellow, University Grant Commission; 2008 to 2009, Research advisor Prof. Binay Kumar, University of Delhi, India, amount **Rs.15 Lakhs**.

Peer reviewer for International journals

- Physica B: Condensed Matter
- Journal of Thin solid films
- Sensors and Actuators B: Chemical
- Ceramic international
- Crystal Growth and Design

List of publications in International Journals

(h-Index : **18** Total citations : **1010)**

33. **T. Kanagasekaran***, H. Shimotani, R. Shimizu, T. Hitosugi and K. Tanigaki A new electrode design for ambipolar injection in organic semiconductors; **Nature Communications**, 8, 999 (2017) **Impact Factor (IF)- 12.12** (*Corresponding author)

32. H. Shang, H. Shimotani, S. Ikeda, **T. Kanagasekaran**, K. Oniwa, T. Jin, N. Asao, Y. Yamamoto, H. Tamura, M. Kanno, M. Yoshizawa and K. Tanigaki; Comparative Study of Single and Dual Gain-Narrowed Emission in Thiophene/Furan/Phenylene Co-Oligomer Single Crystals; **J. Phys. Chem. C,** 121, 2364−2368, (2017), **IF- 4.6**

31. K. Oniwa, **T. Kanagasekaran**, H. Shimotani, S. Ikeda, N. Asao, Y.Yamamoto, K. Tanigaki and T. Jin; Biphenyl end-capped bithiazole co-oligomers for high performance organic thin film field effect transistors; **Chem. Comm**. 52, 27, 4926-4929 (2016). **IF-6.4**

30. **T. Kanagasekaran***, H. Shimotani, S. Ikeda, R. Kumashiro and K. Tanigaki; Equivalent ambipolar carrier injection of electrons and holes with Au electrodes in air stable field effect transistors; **Appl. Phys. Lett.** 107, 043304 (2015). **IF-3.4**

29. F. Liu, H. Shimotani, **T.Kanagasekaran**, V. Zo´lyomi, N. Drummond, V. I. Fal'ko, and K. Tanigaki; High-Sensitivity Photodetectors Based on Multilayer GaTe Flakes; **ACS Nano**, (2014), 8, 1, 752–760. **IF-14.0**

28. K. Oniwa, **T. Kanagasekaran**, T. Jin, Md. Akhtaruzzaman, Y. Yamamoto, H. Tamura, I.Hamada, H. Shimotani, N. Asao, S. Ikeda and K. Tanigaki; Single Crystal Biphenyl End-Capped Furan-Incorporated Oligomers: Remarkable Furan-Effect on Carrier Mobility and Luminescence; **J. Mater. Chem. C, (**2013), 1, 4163–4170. **IF-5.3**

27. H.Tamura, I. Hamada, H. Shang, K. Oniwa, Md. Akhtaruzzaman, T. Jin, N. Asao, Y. Yamamoto, **T. Kanagasekaran**, H. Shimotani, S. Ikeda, K. Tanigaki; Theoretical Analysis on the Optoelectronic Properties of Single Crystals of Thiophene-Furan-Phenylene Co-oligomers: Efficient Photoluminescence due to Molecular Bending; **J. Phys. Chem. C,** 117 16, (2013), 8072–8078. **IF-4.6**

26. P. Mythili, **T. Kanagasekaran**, G. Bhagavannarayana, R. Gopalakrishnan; Studies on crystal growth, optical and electrical characterization of pure and Dy- doped Bismuth silicate single crystals; **J. Crystal Growth** 338, 1, (2012), 222–227. **IF-1.7**

25. **T.Kanagasekaran***, P.Mythili, Binay Kumar and R.Gopalakrishnan; Effect of ion irradiation on the m-Nitroaniline single crystals; **Nuclear Inst. and Methods in Physics Research, B** 268, 1, (2010) 36-41. **IF-1.1**

24. **T.Kanagasekaran**, P.Mythili, G.Bhagavannarayana, D.Kanjilal, R.Gopalakrishnan; Investigations of structural, dielectric and optical properties on the Silicon irradiated Glycine Monophosphate single crystals; **Nuclear Inst. and Methods in Physics Research,B** 267, 15, (2009) 2495-2502. **IF-1.1**

23. **T.Kanagasekaran**, P.Mythili, P.Srinivasan, N.Vijayan, D.Kanjilal, R.Gopalakrishnan and P.Ramasamy; On the observation of Physical, Chemical, Optical and thermal changes induced by 50 MeV Silicon ion in Benzimidazole Single Crystals; **Materials Research Bulletin** 43, 4, (2008) 852-863. **IF-2.5**

22. **T.Kanagasekaran**, P.Mythili, P.Srinivasan, Ahmad Y Nooraldeen, P.K.Palanisamy, R.Gopalakrishnan; Studies on the growth, optical, thermal and mechanical properties of pure and o-nitroaniline doped Benzil crystals; **Crystal Growth & Design**, Vol. 8, No. 7, 2008. **IF-4.1**

21. **T.Kanagasekaran**, P.Mythili, P.Srinivasan, Shailesh.N.Sharma, and R.Gopalakrishnan; Synthesis, Growth and characterization of Organic NLO N-Bromosuccinimide crystal; **Materials Letters** 62 (2008) 2486–2489. **IF-2.6**

20. P.Mythili, **T.Kanagasekaran**, R.Gopalakrishnan and P.Ramasamy; Growth and characterization of semi-organic nicotinium dihydrogenphosphate crystals; **J. Crystal Growth** 310 (2008) 1760–1764. **IF-1.7**

19. P.Mythili, **T.Kanagasekaran** and R.Gopalakrishnan; Growth and Characterization of glycinium oxalate (GOX) single crystals; **Materials Letters** 62 (2008) 2185–2188. **IF-2.6**

18. P.Mythili, **T.Kanagasekaran**, S.A.Khan, P.K.Kulriya, D.Kanjilal and R.Gopalakrishnan; Irradiation effects on Sodium Sulphanilate Dihydrate single crystals; **Nucl. Instr. and Meth. in Phys. Res. B** 266 (2008) 1754–1758. **IF-1.1**

17. P.Mythili, **T.Kanagasekaran**, S.Stella Mary, P.K.Kulriya, D.Kanjilal, R.Gopalakrishnan; Swift heavy ion induced modification on the Optical, Mechanical and Dielectric behaviour of GLS single crystals; **Nucl. Instr. and Meth. in Phys. Res. B** 266 (2008) 1737–1740. **IF-1.1**

16. P. Srinivasan, **T. Kanagasekaran** and R. Gopalakrishnan; Factor Group Analysis and Hyperpolarisability studies of Nonlinear Optical L- Asparaginium Picrate (LASP) crystals; **Spectrochimica Acta Part A:** Molecular and Biomolecular Spectroscopy 71 (2008) 592–596. **IF-2.1**

15. P.Srinivasan, **T.Kanagasekaran** and R.Gopalakrishnan; A highly efficient organic second-order nonlinear optical donor-acceptor l-Valinium picrate single crystals; **Crystal Growth and Design** 8 (7), 2008, 2340–2345. **IF-4.1**

14. P. Srinivasan, A. Y. Nooraldeen, **T. Kanagasekaran**, A. N. Dhinaa, P. K. Palanisamy, and R. Gopalakrishnan; Z-scan determination of the third-order optical nonlinearity of LASP crystal; **Laser Physics**, Vol. 18, 6,(2008) 790–793. **IF-1.1**

13. S. Stella Mary, S. Shahil Kirupavathy, P. Mythili, P. Srinivasan, **T. Kanagasekaran**, R. Gopalakrishnan; Studies on the growth, optical, electrical and spectral properties of potassium pentaborate (KB5) single crystals; **Spectrochimica Acta a:** Molecular and Biomolecular Spectroscopy, 71, 1, (2008) 10-16. **IF-2.1**

12. P.Srinivasan, **T.Kanagasekaran**, D.Kanji Lal, R.Gopalakrishnan, P.Ramasamy; Contemplations on the impressions of MeV Swift heavy ion irradiation on non linear optical Dimethyl amino pyridinium 4 nitrophenolate - 4 nitro phenol (DMAPNP) single crystals; **Radiation effects and defects in solids** Volume 163, Issue 8 (2008) 693 – 702. **IF-0.5**

11. **T.Kanagasekaran**, P.Mythili, P.Srinivasan, N.Vijayan, G.Bhagavannarayana, R.Gopalakrishnan and P.Ramasamy; Investigations on nucleation, thermodynamical parameters and growth of Benzimidazole crystals from low temperature solution; **Cryst. Res. Technol**. 42,10 (2007) 995-1001. **IF-1.0**

10. **T.Kanagasekaran**, P.Mythili, P.Srinivasan, N.Vijayan, G.Bhagavannarayana, P. K. Kulriya, D.Kanjilal, R.Gopalakrishnan and P.Ramasamy; Effects of 50 MeV Si ion irradiation on nonlinear optical benzimidazole single crystals; **Cryst. Res. Technol**. 42, No. 12, (2007) 1376 – 1381. **IF-1.0**

9. P.Mythili, **T.Kanagasekaran** and R.Gopalakrishnan; Investigations on the nucleation kinetics, Growth and characterization of NLO Sulphanilic acid (SAA) single crystals; **Cryst. Res. Technol**. 42, 8 (2007) 791-799. **IF-1.0**

8. P.Mythili, **T.Kanagasekaran**, Shailesh.N.Sharma and R.Gopalakrishnan; Growth and characterization of Sodium sulfanilate dihydrate (SSDH) crystals for NLO applications; **J. crystal growth** 306, 2 (2007) 344-350. **IF-1.7**
7. P.Srinivasan, **T.Kanagasekaran**, N.Vijayan, G.Bhagavannarayana, R.Gopalakrishnan and P.Ramasamy; Studies on the Growth, Optical, thermal and dielectric aspects of a proton transfer complex –Dimethyl amino pyridinium 4-nitrophenolate 4-nitrophenol (DMAPNP) for nonlinear optical applications; **Optical Materials** 30 (2007) 553–564. **IF-2.1**

6. P.Srinivasan, **T.Kanagasekaran**, D.Kanji Lal, R.Gopalakrishnan, P.Ramasamy; Cognitions on the effects of Swift Heavy Ion (SHI) irradiation on the dielectric and optical behaviour in l-Asparaginium Picrate; **Nuclear Inst. and Methods in Physics Research, B** 256(2007) 698-704. **IF-1.1**

5. N. Vijayan, G. Bhagavannarayana, **T. Kanagasekaran**, R. Ramesh Babu, R. Gopalakrishnan, and P. Ramasamy; Crystallization of benzimidazole by solution growth method and its characterization; **Cryst. Res. Technol.** 41, No. 8, 784 – 789 (2006). **IF-1.0**
4. P.Srinivasan, M.Gunasekaran, **T.Kanagasekaran**, R.Gopalakrishnan and P.Ramasamy;2,4,6- Tri nitrophenol (TNP): An Organic material for nonlinear optical applications; **J. Crystal Growth** 289(2006) 639-646. **IF-1.7**

3. P.Srinivasan, **T.Kanagasekaran**, R.Gopalakrishnan, G.Bhagavannarayana and P.Ramasamy; Studies on the growth and Characterization of l-Asparaginium Picrate (LASP)- a novel Non linear Optical Crystal; **Crystal Growth and Design** 6(7) (2006) 1663-1670. **IF-4.1**

2. P.Srinivasan, **T.Kanagasekaran**, N.Vijayan, R.Balamurugan, P.Kannan, R.Gopalakrishnan and P.Ramasamy; Structural, Dielectric and Optical Properties of N-(2 Chlorophenyl)-(1-Propanamide) (NCP) single Crystals; **J. Crystal Growth** 297(2006) 372- 381. **IF-1.7**

1. **T.Kanagasekaran**, M.Gunasekaran, P.Srinivasan, D.Jayaraman, R.Gopalakrishnan and P.Ramasamy; Studies on Growth, induction period, interfacial energy and metastable zonewidth of m-Nitroaniline; **Cryst. Res. Technol**. 40(12) (2005) 1128-1133. **IF-1.0**

International Patents filed

1. **T. Kanagasekaran,** H. Shomotani and K.Tanigaki, New conceptual electrode for organic semiconductors for high ambipolar carrier injection. Ref. No. JP20150445 (2015).
2. **T. Kanagasekaran,** H. Shimotani, and K. Tanigaki, The new idea to trigger organic semiconductor lasers by electrial pumping. Ref. No. JP20170323 (2017). Also the same work under revision in Nature Photonics 2018.
3. Hak-Joe Lee, **T. Kanagasekaran** and W.S. Lee, Large are microcrystalline diamond thin film deposition by direct current plasma-assisted chemical vapor deposition (DC-PACVD) SK 20130813(2013).

Exposure to scientific equipments

- Chemical Vapor Deposition – Organic thinfilm deposition
- Metal evaporator – Au, Al, Ag and Ca deposition for device fabrication
- Glove box – Organic light emitting device preparation and measurement
- Electron beam lithography system
- Clean room – For organic electronic device preparation
- Spin coating
- Agilent 4155C semiconductor parameter analyzer
- Low Temperature FET measurement

- Scanning Kelvin Probe Microscopy – surface potential measurement
- Physical Vapor Transport
- Direct Current Plasma Assisted Chemical Vapor Deposition (DC-PACVD)
- Czochralski technique
- Bridgman technique
- Atomic Force Microscopy (AFM)
- Scanning Electron Microscopy (HR-SEM-EDX)
- Photoluminescence analysis

I hereby assure that the above given data are true to the best of my knowledge.

Thank you

Place:IISER, Tirupati

Date:24-09-2019 T. KANAGASEKARAN