STAFF PROFILE

1) Name: Dr.T.Prem kumar

2) Designation: Former Scientist & Present Assistant Professor

3) Department: Physics

4) Qualifications: M.Sc, M.Phil, Ph.D, Post.Doc

Academic: M.Sc, M.Phil, Ph.D

Additional: Post.Doc

5) Experience (in years): 13 years Teaching: 10 years Research: 3 years

6) Area of Specialization: World Best Nobel level Science, Engineering & Medical field Inventor for Present & Next Generations

7) Contact: E-mail: premnobelforum@gmail.com Mobile Number: 08870443467

8) Grants Received (Conference/Workshop/Seminar/any other):

Event Title	Agency	Fund Received	Date
Recent Developments in Nano Technology and its Applications	Supported by "ISTE"	50,000	09/04/2011

9) Project Completed:

Project Title	Agency	Fund Received	Duration
no	-	-	-

10) Project ongoing:

Project Title	Agency	Fund Received	Duration
no	-	-	-

11) Research Guidance:

Programme	No. of Scholars	
	Completed	Pursuing
Ph. D.	no	no
M. Phil.	no	no

12) Research Publications:

	International	National
Total Number of Publications	25	no

List of International Publications:

[1] My own several thousand new science, engineering and medical field inventions, **T.Prem kumar**, J Chem Eng Process Technol, 12 (2021) 6

[2] Several lakh new inventions in organic, quasi-organic, inorganic, astro-organic, astroquasi organic & astro-inorganic materials fabrication work plan practical demonstration for present and next generation, **T.Prem kumar**, (Source: Joint **6th International Conference on Physical and Theoretical Chemistry & 8th World Congress on Bio-Polymers and Polymer Chemistry, 30/3/2021 and February 22, 2022), (Received: Jan 17, 2022; Accepted: Jan 20, 2022; Published: Feb 28, 2022) Journal of Physical Chemistry & Biophysics, 12 (2022) p-21**

[2] World Best Level Efficiency from an Engineered Novel SLG/Mo/p-Cu2ZnSn(Al)Se4/n-CdS/i-ZnO/Al:ZnO/Al Compound Semiconductor Hetero-Junction Thin Film Solar Cells, **T.Prem kumar**, V.Muthupriyal, A.Antony Christian Raja, R.Sasireka, R.Suman, SNC Journal of Academic Research in Humanities and Sciences, 9 (2022) 41-46

[3] Influence of mercaptoethanol concentration on the structural, surface, optical and electrical properties of <Ag/Melt growth polished p-Si/n-CdZnS/Ag> hetero p-n junction high voltage range tunable short diodes, **T.Prem kumar**, V.Muthupriyal, Yonkil Jeong, Shenbagabalakrishnan, Professor Jae-Hyung Jang, Professor K.Sankaranarayanan, SNC Journal of Academic Research in Humanities and Sciences, 9 (2022) 108-115

[5] Various Metal Sandwich Layer Oriented Efficiency Enhancement Superiority on CuInGaSe2 Thin film Solar cells, R.Kabilan, R.Ravi, A.Antony Christian Raja, **T.Prem kumar *,** Advances in Chemical Engineering and Sciences, 9 (2019)176-181

[6] Enhanced Efficiency of Cu(In,Ga)Se2 solar cells with antireflection coating layers of MgF2 and ZnO nanorods, Bo-Hyun Shim, Jang-Won Kang, Hojung Jeong, Yonkil Jeong, **T.Prem kumar,** Jae-Hyung Jang, Seong-Ju Park, Thin Solid Films –Elsevier 603 (Feb-2016) 103-107

[7] Quasi-Photonic Crystal Effect of $TiCl_3$/Electrolyte Matrix in Unipolar Dye–Absorber Devices, Dong-Won Park, Yonkil Jeong, **T.Prem kumar**, Jaeyoung Lee, ACS Appl. Mater. Interfaces, 2014, 6 (16), pp 14399–14404 .

[8] Surface and Optical Properties of Cu2InGaSe2 Thin Film Absorber Layer For High Efficiency Solar Cells, M.S.Revathy, R.Suman, V.Muthupriyal, T.Chitravel, **T.Prem kumar *,** Journal of Ovonic Research 2016, 12 (1)

[9] Fabrication and characterization of spray deposited ZnO thin films for solar cell application, S.Rajasekar, P.S.Joseph, **T.Prem kumar** and T.Chitravel, Elixir Thin film tech, 50 (2012) 10533-10535

[10] Fabrication and Characterization of SLG/CZTS/CdS/i-ZnO/Al:ZnO/Al Thin Film Solar Cell Device, R.Suman, M.S.Revathy, V.Muthupriyal, T.Chitravel, **T.Prem kumar** *, Journal of Ovonic Research 2015, 11 (5) 243-248

[11] Engineering the structural and photoluminescence properties of β-In2S3 nanopowders for luminescence application, T.Mukesh, **T.Prem kumar,** T.Chitravel, Elixir Nanocomposite Materials 50 (2012) 10525-10527

[12] Influence of acid/base co-catalyst on the photoelectrochemical properties of TiO2thin films in dye-sensitized solar cells, Dong-Won Parka, Yonkil Jeong, **T.Prem kumar**, Jaeyoung Lee, Yong-Kook Choi, , Electrochimica Acta, 107 (**2013**) 619– 623.

[13] Effect of Buffer Layer Composition and Surface Features on Large Area and High Efficiency CuInxGa1-xSe2 Solar Cells, **T.Prem kumar**, Maeng Jun Kim, Hojung Jeong, Sehyun Hwang, N.L.Tarwal, Yon Kil Jeong, Jae Hyung Jang, , IEEE PVSC Proceedings 2013, USA Florida.

[14] Effect of annealing on the surface and band gap alignment of CdZnS thin films, **T.Prem kumar**, S.Saravanakumar and K.Sankaranarayanan, Applied Surface Science, 257 (2011) 1923-1927.

[15] Structure, X-ray photoelectron spectroscopy and photoluminescence investigations of the spray deposited cobalt doped ZnO thin films, N.L. Tarwal, K.V. Gurav, **T.Prem kumar**, Y.K. Jeong, H.S. Shim, I.Y. Kim, J.H. Kim, J.H. Jang, P.S. Patil, Journal of Analytical and Applied Pyrolysis 106 (**2014**) 26-32.

[16] Optical endpoint detection for plasma reduction of graphene oxide, MaengJun Kim, Yung Ho Kahng, Yong Jae Kim, **T.Prem kumar**, KwangMook Park, Kwanghee Lee, and Jae-Hyung Jang, AIP Advances 3, 032121 (**2013**);

[17] Microscopic and Optical haracterization of $Cd_{0.8}Zn_{0.2}S$ Thin Film, Journal of Advanced Microscopy Research, **T.Prem kumar**, S. Rajasekar, S. Saravanakumar, P. S. Joseph, and K. Sankaranarayanan, 5, 123–128 (2010).

[18] Influence of substrate on the structural, surface, photoluminescence and computed three dimensional nanocrystal shapes of CBD-CdS thin films,

T.Prem kumar, D.Sherwood, Bosco Emmanuel and K.Sankaranarayanan, , Journal of Computational and Theoretical Nanoscience, 7 (9) July 2012, pp. 947-952 (6)

[19] Effect of post thermal treatment on the structural, surface and optical properties of CuO thin films, **T.Prem kumar**, Journal of Advanced Microscopy Research 6 (3) 2011, pp. 227-231(5)

[20] Effect of EDTA concentration on the physical and optical properties of CdS thin films, **T.Prem kumar**, K.Sankaranarayanan, , The Canadian Journal of Chemical Engineering, 91 (3) 2013

[21] Crystal Shape Determination In Thin Films And Studies On The Substrate Influence On The Crystal Shape In CBD-CdS Thin Films, **T.Prem kumar**, D.Sherwood, Bosco Emmanuel and K.Sankaranarayanan, , Digest Journal of Nanomaterials and Biostructures, Vol. 4, No. 4, (2009) p.813-817.

[22] Growth And Characterization Of CdZnS Thin Films By Short Duration Micro Wave Assisted-Chemical Bath Deposition Technique, **T.Prem kumar** and K.Sankaranarayanan, Chalcogenide Letters Vol. 6, No. 10, (2009) p. 555 – 562.

[23] Tunability Of Structural, Surface Texture, Compositional And Optical Properties Of CdZnS Thin Films By Photo Assisted-Chemical Bath Deposition Technique, **T.Prem**

kumar and K.Sankaranarayanan, ", Chalcogenide Letters, Vol. 6, No. 11, (2009) p. 617 – 622.

[24] Compositional Effects on Shallow Donor Binding Energy of a Nano Dot, Digest Journal of Nanomaterials and Biostructures, **T.Prem kumar**, P.Ramesh and S.D.Gopal Ram, Vol. 6, No 2, (2011) p. 683 - 688.

[25] Effect Of Ethylenediamine Tetraacetic Acid Concentration On The Photoluminescence Behavior Of CdZnS Thin Films, **T.Prem kumar**, P.Ramesh and D.B.Jabaraj, , Chalcogenide Letters, Vol. 8, No. 3, (2011) p. 207 – 212.

List of National Publications: No

13) Chapters in Books: No

14) Other Publications (Proceedings): 2

[1] Effect of Buffer Layer Composition and Surface Features on Large Area and High Efficiency CuInxGa1-xSe2 Solar Cells, **T.Prem kumar**, Maeng Jun Kim, Hojung Jeong, Sehyun Hwang, N.L.Tarwal, Yon Kil Jeong, Jae Hyung Jang, , IEEE PVSC Proceedings 2013, USA Florida.

[2] Substrate influence on the structural, surface and optical properties of CdZnS thin films, **T.Prem kumar**, T.Chitravel, University of Malaysia, Uni map Digital Library, **School of Mechatronic Engineering, 2012-02-27**

15) Books Published: no

16) Presentation in Seminar / Conference:

International: 4

1) Application of EDTA on the habitual modification of CBD nano CdS thin films, **T.Prem kumar** and K. Sankaranarayanan, International Conference on Advancement of Nano Science and Nano Technology (ICOANN 2010), p-58

2) Effect of annealing on the feature modification of CuO nanomaterials, **T.Prem kumar** and K. Sankaranarayanan, International Conference on Advancement of Nano Science and Nano Technology (ICOANN 2010), p-33

3) Substrate oriented effects on the 3-D crystal shape / habits of CBD-CdS thin films, **T.Prem kumar** and K. Sankaranarayanan, International Conference on Advancement of Nano Science and Nano Technology (ICOANN 2010), p-34

4) Diamagnetic susceptibility of a hydrogenic donor in a Quantum Well Wire, P. Nithiananthi, M. Parameswari, K. Anjana, **T.Prem kumar** and K. Jayakumar, Eighth International Conference on Nanostructured Materials – NANO 2006, I.I.Sc., Bangalore, India (2006).

National: 6

1) Unidirectional KAP-Substrates- Fabrication and its characterization, **T.Prem kumar,** G. Bhagavannarayana and K. Sankaranarayanan, 14th National Seminar on Crystal Growth, (2010) p-28.

2) Physical, Optical and Electrical Characteristics of CBD-CdZnS, **T.Prem kumar** and K. Sankaranarayanan, 14th National Seminar on Crystal Growth, (2010) p-80.

3) Chemical Bath Deposition of CdS and its characterization, **T.Prem kumar,** R.Subha and K. Sankaranarayanan, 13th National Seminar on Crystal Growth, (Chennai, during 27-29th January, 2009).

4) Dyeing Crystals, R.Subha, **T.Prem kumar** and K. Sankaranarayanan, 13th National Seminar on Crystal Growth at SSN College of Engineering, Chennai (during 27-29th January, 2009).

5) Growth and characterization of CdS thin films and its photoelectric application, **T.Prem kumar** and K.Sankaranarayanan, 9th National Tamil Science Conference, (2009) p-90.

6) Contribution of Sankaranarayanan-Ramasamy method in Crystal Growth, **T.Prem kumar** and K.Sankaranarayanan, 9th National Tamil Science Conference, (2009) p-91.

17) Participation in Conference: no

18) Participation in Seminar: no

19) Participation in Workshop: no

20) Participation in Orientation Programme/ Induction Programme/ Short term Courses:

1) 4-Weeks Induction/Orientation programme completed from Teaching Learning Centre, Ramanujan College, University of Delhi & date 19/7/2021 to 17/8/2021

21) Participation in Faculty Development Programme:

1) 2-Weeks Refresher course in major "Physics" completed, Teaching Learning Centre, Ramanujan College, University of Delhi & date 31/10/2022 to 14/11/2022

2) 2-Weeks Refresher course/Faculty development Programme in Interdisciplinary field "Advanced Research Methodology", Teaching Learning Centre, Ramanujan College, University of Delhi & date 20/8/2021 to 3/9/2021

22) Conference/ Seminar/ Workshop Organized: 1

1) Recent Developments in Nano Technology and its Applications, Supported by ISTE, 9th April, 2011

23) Invited Speaker & Keynote Speaker: 6

[1] World best results Research record presentation: Dr.T.Prem kumar, Oryang Hall, RISE, GIST, South Korea

Title: (1) Worlds ultra fast large area p-n junction manufacturing method for Industry applications

[2] World best solar cells and modules efficiency with world best current limit overcome beyond the theory limit presentation in year-2014, RISE, GIST, South Korea, (Promoted as a Scientist from Post.Doc Position)

[3] Invited Speech:- Dr.T.Prem kumar, anna University

Title: (World Record Level Series Solar Products Inventions For Space Application, 27-1-2.2016)

[4] Invited Speech:- Dr.T.Prem kumar, Arulanandhar College, Madurai

Title: (World best research inventions and recent advancement in science and engineering, 2017)

[5] Key Note Speaker: Dr.T.Prem kumar, 4th World Congress on Bio-polymers and Polymer Chemistry, England

Title: (My own several thousand new science, engineering and medical field inventions)

[6] Key Note Speaker: Dr.T.Prem kumar, **Joint** 6th International Conference on Physical and Theoretical Chemistry & 8th World Congress on Bio-Polymers and Polymer Chemistry, February 22, 2022, England

Title: (**Several lakh new inventions in organic, quasi-organic, inorganic, astro-organic, astroquasi organic & astro-inorganic materials fabrication work plan practical demonstration for present and next generation**)

[7] Invited Speaker: Dr.T.Prem kumar, K.Sankaranarayanan, Recent Developments in Nano Technology and its Applications, Supported by ISTE, 9th April, 2011, Kodaikanal

Title: Nanometric Thin Film Devices

24) Other Co-curricular / Administrative Responsibilities: The 6th Sense Coordinator

25) Member in Board of Studies: no

26) Editorial/ Review Board Member: no

27) Membership in Professional Bodies: no

28) Awards received: 2

1) Best crystal/Thin film device fabrication award in VIT, year-2009

2) Promoted as a Scientist from Post.Doctoral Position in RISE, GIST, South Korea

29) Consultancy: 2

1) The CM J. Jayalalitha Research Institute for Space and Defense", (MSME: TN06D0010191), Free Research Service to Common Peoples, Government of India (Founders:- Dr.T.Prem kumar & V.Muthupriyal)

2) Research Product Invention & Solution Service Center (MSME-TN21D0003788)" for providing free of cost knowledge support & instrumentation support for novel research work completion (Founders:- Dr.T.Prem kumar & V.Muthupriyal)

30) Patents: 1

Development of a novel material CuCdS as a UV Sensor". Appl.No. 693/CHE/2010: Dt.10.2.2011 Publication Date : 15.06.2012 / PO Journal No. 24/2012/Page:113, T.Prem kumar, K.Sankaranarayanan, P.Ramasamy

31) Any other information: 7

1) Research Experience with Professor Alan J. Heeger Research Centre Nobel Team

2) Research Experience with Professor ERTL Research Centre Nobel Team

3) Research Experience with Materials Science and Engineering department, GIST, South Korea

4) Research Experience with Information and Communication department, GIST, South Korea

5) Research Experience with RISE, GIST, South Korea

6) Research Experience with CECRI, Karaikudi, Tamilnadu, India

7) Visited Country:- United stated of America & South Korea

* Note : Please provide the total Numbers and details for each metrics