Curriculum Vitae

Naresh Duvva, M.Sc, Ph.D.
C/o. Dr.L.Giribabu,
Senior Principal Scientist & Co-chair,
Polymers & Functional Material Division,
Indian Institute of Chemical Technology, (CSIR), Hyderabad-500 007.
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Google scholar: https://scholar.google.com/citations?user=DOgVwdwAAAAJ&hl=en
Linkedin: https://www.linkedin.com/in/naresh-duvva-10b74957/?originalSubdomain=in

Career Objective:

To be associated with a progressive organization or institution that gives me scope to utilize and update my knowledge and research skills in the area of synthetic organic chemistry, medicinal chemistry and photovoltaics as well as material chemistry in accordance with the latest trends. Also to be part of a team that dynamically works towards the growth of an organization or institution and to team up with highly skilled co-workers compete with every possible competitor, prove myself in every aspect, do justice to my research. I want to contribute modern organic synthesis and industrial chemistry using my innovative thoughts and hardworking nature.

Research Summary:

- 8+ years of experience in research involving development of organic molecules, polymers, porphyrins, Bodipys, metal complexes and donor-acceptor systems, material chemistry and analytical chemistry.
- Experience in result-oriented handling of multiple projects- prioritizing tasks, meeting deadlines and reporting results.
- Proven problem-solving approach, ability to work under pressure, good knowledge in application of catalysts.
- Research planning using broad knowledge of chemical literature.
- Good knowledge on interpretation of the modern characterization techniques like NMR, Mass, FAB and MALDI-TOF spectral analyses, FT-IR, UV-Vis spectrum, etc.
- Good knowledge in Computational chemistry (structure optimization, HOMO / LUMO Diagrams, UV-Vis graph).

Education and appointments:

- **1st April 2019 to till :** Postdoctoral research fellow, Physical chemistry, Department of Chemistry - Ångström Laboratory, Uppsala University, Sweden.
  https://katalog.uu.se/empinfo/?id=N19-915
- **December 2014-November 2018 :** Ph.D., Osmania University, Hyderabad, India, (Indian Institute of Chemical Technology, a constituent of Council of Scientific & Industrial Research (CSIR) is a leading research institute in the area of chemical sciences).

Thesis Title: Highly Efficient Donor-π-Acceptor Based Organic Sensitizers for Dye-Sensitized Solar Cells.

(Supervisor: Dr. L. Giribabu, Senior Principal Scientist & Co-Chair, Polymers & Functional Materials Division, https://www.iictindia.org/People/view?id=429&type=basic).

- **June 2012 to December 2014 :** Junior Research Fellow (Project) - Material Science Lab, Inorganic & Physical Chemistry division, CSIR-IICT, Hyderabad.
  Project Title: Efficient Solar Cells based on Organic and hybrid Technology (ESCORT).
- **August 2009 to November 2011: Post-Graduation** in **M.Sc (Chemistry)**, Osmania University, Hyderabad, Telangana, India with **74.3O%.**
- **June 2006 to June 2009 : Graduation** in **B.Sc (Chemistry, Physics, Mathematics)** , Kakatiya University-Warangal, Telangana, India with **92.05%.**
- **May 2004 to May 2006: Intermediate (Chemistry, Physics, Mathematics)**, Board of Intermediate Education, A.P, India with **85.90%.**
- **March 2003 to March 2004 : Secondary School Certificate (S.S.C) (10th),** Board of Secondary Education, A.P, India with **76.50%.**

Achievements:

- Selected one of the Prestigious **"Bhaskara Advanced Solar Energy (BASE) Fellowship Indo-US Program"** for 6months (From 30th April 2018 to 29th October 2018) Internship program sponsored by Indo-U.S. Science and Technology Forum, under the guidance of Prof. Kirk S. Schanze at the University of Texas at San Antonia (UTSA), USA.
- Merit student award received from Minister of Education in Under Graduate.
- Awarded Junior Research Fellowship (Council of scientific and Industrial Research) Dec 2014 to Nov 2016.
- Awarded Senior Research Fellowship (Council of Scientific and Industrial Research) Dec 2016 to March 2019.
- Qualified **CSIR(NET)** DECEMBER,2013-**CSIR-JRF-58th** Rank , JUNE,2013-**UGC-JRF-86th** Rank, DECEMBER, 2012-**NET(LS)-36th** Rank and JUNE2011-**NET(LS)-29th** Rank.
- Qualified **GATE-2012** with All India Rank **– 660** and **GATE-2013** with All India Rank – 337**.**

Professional services:

- Serving as Reviewer in Solar Energy journal from April, 2018.
- Awarded Solar Energy Journal Outstanding Contribution in Reviewing in July, 2018.

Research Experience (Present & Previous):

- **Postdoctoral research fellow (01/04/2019 –31/03/2021)-** Department of Chemistry - Ångström Laboratory, Uppsala University, Sweden.
  (Design and Development of various organic sensitizers, polymers and metal complexes for applications in material chemistry).
- **Bhaskara Advanced Solar Energy (BASE) Fellow (29/04/2018 – 29/10/2018)-** University of Texas at San Antonia (UTSA), USA.
  (Developed and device fabricated by synthesized metal-free organic sensitizers).
- **Ph.D (in Chemistry) (01/12/2014 – 29/03/2019)-** Osmania University, Hyderabad, India.
  Enrolled with Osmania University, Hyderabad to carry out my Ph.D. Worked at CSIR-Indian Institute of Chemical Technology, Hyderabad, India under the guidance of Dr. L. Giribabu. Ph.D. thesis entitled ***"Highly Efficient Donor-π-Acceptor Based Organic Sensitizers for Dye-Sensitized Solar Cells."***

- **Junior Research Fellow (Project) (13/06/2012 to 01/12/2014)-** Material Science Lab, Inorganic & Physical Chemistry division, CSIR-IICT,Hyderabad,
  Project Title: Efficient Solar Cells based on Organic and hybrid Technology (ESCORT).

  (Executing multi step synthetic strategies towards the total synthesis of high efficiency low cost Metal free organic sensitizers for applications in material chemistry).

Publications, Review and Patent:

2020

21. "Hexyl dithiafulvalene (HDT)-substituted carbazole (CBZ) D–π–A based sensitizer for dye-sensitized solar cells" **Naresh Duvva**; Lingamallu Giribabu; **New J. Chem., 2020,44, 18481-18488.** (IF: 3.288)
https://pubs.rsc.org/fa/content/articlelanding/2020/nj/d0nj04147e/unauth#!divAbstract

20. "Multistep Electron Injection Dynamics and Optical Nonlinearity Investigations of π-Extended Thioalkyl-Substituted Tetrathiafulvalene Sensitizers" Chinmoy Biswas; Krishnakanth Katturi Naga; **Naresh Duvva**; Lingamallu Giribabu; Venugopal Rao Soma; Sai Santosh Kumar Raavi. ***J. Phys. Chem. C, 20120, 124, 44, 24039–24051.*** (IF: 4.189)
https://pubs.acs.org/doi/abs/10.1021/acs.jpcc.0c06010

19. "Bis(4′-tert-butylbiphenyl-4-yl)aniline (BBA)-Substituted A3B Zinc Porphyrin as Light Harvesting Material for Conversion of Light Energy to Electricity" **Naresh Duvva**, Suneel Gangada, Raghu Chitta, Lingamallu Giribabua. ***Journal of Porphyrins and Phthalocyanines, 2020*** (Just Accepted Manuscript-jpp200079*).* (IF: 1.816)

https://www.worldscientific.com/doi/10.1142/S1088424620500327

18. "Bulky Phenanthroimidazole-Phenothiazine D-π-A Based Organic Sensitizers for Application in Efficient Dye-Sensitized Solar Cells" **Naresh Duvva**, Yu Kyung Eom, Govind Reddy, Kirk S. Schanze, and Lingamallu Giribabu. **ACS Applied Energy Materials, 2020** (Just Accepted Manuscript-https://doi.org/10.1021/acsaem.0c00892) (IF: 4.473)
https://pubs.acs.org/doi/10.1021/acsaem.0c00892

2019

17. "Intramolecular Electron Transfer in Porphyrin - Anthraquinone Donor-Acceptor systems with varying molecular bridges" **Naresh Duvva**, A. R. Ramya, Govind Reddy, L. Giribabua. ***Journal of Porphyrins and Phthalocyanines Vol. 23, No. 06, pp. 628-638 (2019).*** (IF: 1.816)
https://www.worldscientific.com/doi/abs/10.1142/S1088424619500287

16. "Influence of Strong Electron Donating Nature of Phenothiazine on A_3B- type Porphyrin Based Dye Sensitized Solar Cells" **Naresh Duvva**, Seelam Prasanthkumar and Lingamallu Giribabu. ***Solar Energy 184, 620-627.*** (IF: 4.608)
https://www.sciencedirect.com/science/article/pii/S0038092X19303743

15. "Functional π-Conjugated Tetrathiafulvalene Decorated with Benzothiadiazole Organic Sensitizers for Dye Sensitized Solar Cells" **Naresh Duvva**, Govind Reddy, Surya Prakash Singh, Lingamallu Giribabu, Towhid H.Chowdhury, Idriss Bedja, Ashraful Islam. **New J. Chem., 2019, 43, 8919-8929.** (IF: 3.288)
https://pubs.rsc.org/en/content/articlelanding/2019/NJ/C9NJ01029G#!divAbstract

2018

14. "Tetrathiafulvalene scaffolds based sensitizer on hierarchical porous TiO2: Efficient light harvesting material for hydrogen production" Amritanjali Tiwari; **Naresh Duvva**; V. Navakoteswara Rao; M. V. Shankar; Ujjwal Pal; Giribabu Lingamallu. ***J. Phys. Chem. C, 2019, 123 (1), pp 70–81.*** (IF: 4.189)
https://pubs.acs.org/doi/abs/10.1021/acs.jpcc.8b08787

13. "Hypochlorite Mediated Modulation of Photo-induced Electron Transfer in Phenothiazine-Borondipyrromethene Electron Donor-Acceptor Dyad: A Highly Water Soluble "turn-on" Fluorescent Probe for Nanomolar Detection of Hypochlorite" Disha Soni, **Naresh Duvva**, Deepak Badgurjar, Tapta Kanchan Roy, Surendra Nimesh, Geeta Arya, Lingamallu Giribabu, Raghu Chitta. ***Chem. Asian J.2018,13,1594 – 1608***. (IF: 4.056)

https://onlinelibrary.wiley.com/doi/abs/10.1002/asia.201800349

12. "Photoinduced Energy Transfer in Carbazole-BODIPY Dyads" Reddy, Govind; **Duvva, Naresh**; Seetharaman, Sairaman; D'Souza, Francis; Giribabu, Lingamallu; ***Phys. Chem. Chem. Phys., 2018,20, 27418-27428.*** (IF: 3.430)

https://pubs.rsc.org/-/content/articlelanding/2018/cp/c8cp05509b#!divAbstract

11. "Excitation Dependent Electron Exchange Energy and Electron Transfer Dynamics in a Series of Covalently Tethered *N, N*-bis (4′-*tert*-butylbiphenyl-4-yl) aniline - [C_{60}] Fullerene Dyads *via* varying π-conjugated Spacers" Suneel Gangada**,** , Madhu Chakali, Haraprasad Mandal, **Naresh Duvva,** Raghu Chitta, Lingamallu Giribabu, Prakriti Ranjan Bangal, **Phys. Chem. Chem. Phys., 2018,20, 21352-21367.** (IF: 3.430)

https://pubs.rsc.org/-/content/articlelanding/2018/cp/c8cp03521k#!divAbstract

2017

10. "Hypochlorite Promoted Inhibition of Photo-Induced Electron Transfer in Phenothiazine – Borondipyrromethene Donor – Acceptor Dyad: A Fluorescent Chemosensor for the Detection of Hypochlorite in Solution" S. Disha**,** G. Suneel, **Naresh Duvva**, Roy, Tapta; Nimesh, Surendra; Arya, Geeta; Giribabu, Lingamallu; Chitta, Raghu, **New J. Chem., 2017,41, 5322-5333.** (IF: 3.288)

http://pubs.rsc.org/en/content/articlelanding/2017/nj/c7nj00516d#!divAbstract

9. "Recent developments in Tetrathiafulvalene and Dithiafulvalene based Metal–Free Organic Sensitizers for Dye sensitized solar cells: A Mini-review"; **Naresh Duvva**, Ushasri Chilakamarthi and Lingamallu Giribabu, **Sustainable Energy Fuels, 2017, 1, 678-688.** (IF: 5.503)

http://pubs.rsc.org/en/content/articlelanding/2017/se/c7se00068e#!divAbstract

8. "Effect of spacers and anchoring groups of extended π-conjugated tetrathiafulvalene based sensitizers on the performance of dye sensitized solar cells" L. Giribabu, **Naresh Duvva**, S. Prasanthkumar, S. P. Singh, L. Han, I. M. Bedja, R.K.Gupta and A. Islam, **Sustainable Energy Fuels, 2017, 1, 345-353.** (IF: 5.503)

http://pubs.rsc.org/en/content/articlelanding/2017/se/c6se00014b#!divAbstract

7. "Stable and charge recombination minimized π-extended thioalkyl substituted tetrathiafulvalene dye-sensitized solar cells" L Giribabu, **Naresh Duvva**, SP Singh, L Han, IM Bedja, RK Gupta, A Islam. **Mater. Chem. Front., 2017, 1, 460-467.** (IF: 6.788)

http://pubs.rsc.org/en/content/articlelanding/2017/qm/c6qm00070c#!divAbstract

2016

6. "Design of diketopyrrolopyrrole chromophores applicable as sensitizers in dye-sensitized photovoltaic windows for green houses" **Naresh Duvva,** D Raptis, CV Kumar, EN Koukaras, L Giribabu, P Lianos. **Dyes and Pigments, 2016, 134, 472-479.** (IF: 4.613)

http://www.sciencedirect.com/science/article/pii/S0143720816303631

5. "Light induced intramolecular electron and energy transfer events in rigidly linked borondipyrromethene: Corrole Dyad", L Giribabu, K Jain, K Sudhakar, **Naresh Duvva**, R Chitta , **Journal of Luminescence 177 (2016) 209–218.** (IF: 3.280)

http://www.sciencedirect.com/science/article/pii/S0022231315304208

4. "Ultrafast intramolecular photoinduced energy transfer events in benzothiazole–borondipyrromethene donor–acceptor dyads", Deepak Badgurjar, Kolanu Sudhakar, Kanika Jain, Vibha Kalantri, Y.Venkatesh**,** **Naresh Duvva,** Seelam Prasanthkumar, Anuj K. Sharma, Prakriti R. Bangal, R. Chitta, and L. Giribabu. ***J. Phys. Chem. C,* 2016,** ***120*** **(30), pp 16305–16321.** (IF: 4.189)

http://pubs.acs.org/doi/10.1021/acs.jpcc.6b03668

3. "Synthesis and spectroscopic studies of axially bound tetra(phenothiazinyl)/tetra(bis(4′-tert-butylbiphenyl-4-yl)aniline)-zinc(II)porphyrin-fullero[C60 & C70]pyrrolidine donor–acceptor triads". Kanika Jain, **Naresh Duvva**, Deepak Badgurjar, Lingamallu Giribabu, Raghu Chitta, **Inorganic Chemistry Communications, Vol. 66, (2016), Pages 5–10.** (IF: 1.943)

http://www.sciencedirect.com/science/article/pii/S1387700316300168

2015

2. "Spacer Controlled Photo-Induced Intramolecular Electron Transfer in a Series of Phenothiazine-Boron Dipyrromethene Donor-Acceptor Dyads", **Naresh Duuva,**; Kolanu Sudhakar,; Deepak Badgurjar,; Raghu Chitta,; Lingamallu Giribabu. **Journal of Photochemistry and Photobiology A: Chemistry 312 (2015) 8–19.** (IF: 3.306)

https://www.sciencedirect.com/science/article/pii/S1010603015002634

1. "Carbazole-based sensitizers for potential application to dye sensitized solar cells" **Naresh Duvva**, Ravi Kumar Kanaparthi, Jaipal Kandhadi, Gabriele Marotta, Paolo Salvatori, Filippo De Angelis, Lingamallu Giribabu; **J. Chem. Sci. Vol.127, No.3, 2015, pp. 383-394.** (IF: 1.406)

https://link.springer.com/article/10.1007/s12039-015-0794-1

❖ Patent:

1) "Efficient and stable π -extended metal-free organic sensitizer for dye-sensitized solar cells" Giribabu, Lingamallu; Singh, Surya Prakash; **Naresh, Duvva**. Indian patent No: **IN 2015DE02462**.
Assignee: Council of Scientific & Industrial Research, India.
Source: Indian Pat. Appl., 40pp. Patent, 2017, CODEN: INXXBQ
Patent Information: Feb 17, 2017, IN 2015DE02462, A; Application: Aug 11, 2015, IN 2015-DE2462.

https://content2.cas.org/v1/AUTH_9a355bb5cefd4c378bde0d541c6a11ce/patentpak-cdr-full-text-109/patent/77833022_1537160410.pdf?temp_url_sig=a565ca72754628fbbc9370138cb087e47d130528&temp_url_expires=1589802531&inline

Workshop, Seminars and Symposiums:

1. Participated and Poster presentation symposium on "21st CRSI-National Symposium in Chemistry **(CRSI NSC-21)**" at CSIR-Indian Institute of Chemical Technology-Hyderabad, India, on 14-16 July 2017. *(**Title:** High Efficient Distinct Thioalkyl substituted Tetrathiafulvalene Based Metal-Free Organic Sensitizers for Dye Sensitized Solar Cells).*

   (and)

   Participated "CRSI-ACS Symposium in Chemistry" at CSIR-Indian Institute of Chemical Technology-Hyderabad, India, on 13 July 2017.

2. Participated and Poster presentation on '**Indo-EU Workshop** on Microbial Electrochemical Technologies for Sustainability: Fuels, Chemicals and Remediation '**metSUS2017**' at CSIR-IICT, Hyderabad on 28th February 2017, (***Title**: Highly efficient distinct sensitizers for dye sensitized solar cells).*

3. Poster and oral presentation in National Conference on Luminescence and Applications [NCLA-2017] during 9-11th January, 2017 at CSIR-Indian Institute of Chemical Technology-Hyderabad, India. *(**Title**: Highly efficient distinct sensitizers for dye sensitized solar cells).*

4. Poster and Oral presentation, attended symposium and the project review meeting held on October 14th and 15th, 2015 at Brunel University, London, UK. *(**Title**: Highly Efficient Thioalkyl Substituted Tetrathiafulvalene Sensitizers for Dye-Sensitized Solar Cells)*
5. Attended **workshop on perovskite Solar Cell fabrication**, which was conducted by, Oxford University, London, UK. On October 16th, 2015.
6. Participated and Poster presentation symposium on "21st National Symposium on Catalysis for Sustainable Development **(CATSYMP-21)**" sponsored by CSIR-Indian Institute of Chemical Technology-Hyderabad, India, on 11-13 February 2013. *(**Title:** Molecular Materials for Dye Sensitized Solar Cells)*
7. Participated symposium on 2nd National Symposium on Polymers & Coatings **(NSPC-2014)**" sponsored by CSIR-Indian Institute of Chemical Technology-Hyderabad, India on 25-26 April 2014.
8. Attended National seminar on "New Dimensions in Chemical Sciences **[NDCS-2010]**" organized by Osmania University, Hyderabad, India on 30th January 2010.

Instruments Handled:

- NMR instrument: JEOL (400YH magnet) Resonance 400 MHz spectrometer.
- UV-Visible, Near IR absorption spectrophotometer (SHIMADZE).
- Fluorescence Spectroscopy (FluroHub, HORIBA).
- Time resolved Fluorescence spectrofluorimeter; time correlated single photon counting (TCSPC) setup, (Lifetime).
- Cyclic Voltammetry (CV).
- Spectroelectrochemical measurements using optically transparent thin layer electrode technique (investigation of reaction mechanism).
- Fabrication and photovoltaic measurements using Oriel Sol3A class AAA **solar simulator**, Newport Corporation. Measurements of I-V curves using Keithley source meter and QE measurements using Oriel TRACQ Basic V6.0 software.

Professional and personal skills:

- Excellent practical laboratory skills in the development of Organic sensitizers, Polymers, Porphyrins, Bodipys, Metal complexes for application of solar cells and solar fuels and Photochemical studies of light driven electron and energy transfer reactions using various spectroscopic methods.
- Expertise in **Computational chemistry Gaussian 09 package** (structure optimization, HOMO / LUMO Diagrams, uv-vis graph).
- Technically well conversant with the experimental and purification methods such as Thin-Layer Chromatography, Column Chromatography, Fractional distillation, and Recrystallization.
- Expertise in analyzing and identifying synthesized compounds by modern analytical techniques (NMR, Mass Spectrometry, FT-IR, UV-VIS etc.)
- Proficiency with Chem Draw, Gaussian 09 package, Reaxys, SciFinder, Origin.8.5, Mestrec, MestReNova.
- Vast experience in handling of air and moisture sensitive reactions at milligram to gram scale reactions.
- To arrive at a different synthetic route when the designed route is not proceeding.

- Very good organizational, high level skills of trouble-shooting and problem solving.
- Highly motivated and dependable in achieving set goals and
- Flexible to different kind of work environment.
- Research planning using broad knowledge of chemical literature.
- Proficiency in writing manuscripts, project reports, poster presentation skills at conferences.
- Trained Undergraduate students during Ph.D.
- Capable of handling collaborative and independent work and Able to manage a multiple tasks in pressured environment.
- Has already finished several targeted projects with both synthesis and computational work.
- Ability to build effective and productive working relationships with colleagues and the team.

Computer Skills:

Knowledge of computer operating systems such as Windows and workstations related to chemistry-Chem draw, Reaxys, Scifinder, Origin.8.5, MS Office, MS Excel, power point presentation, knowledge of report writing and documentation.

Personal Profile:

Name	:	Naresh Duvva
Father's name	:	Venkata Narsaiah Duvva
Mother's name	:	Saraswathi Duvva
Date of Birth	:	5th May 1986
Gender	:	Male
Marital Status	:	Married
Nationality	:	Indian
Blood Group	:	AB +ve
Passport Number	:	K8567575
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Declaration:

I hereby declare that the information furnished above is true to the best of my knowledge.

Place : Hyderabad, India.

(DUVVA NARESH)

Brief summary of my current and past areas of research

I am highly expertise in the synthesis of organic molecules, polymers, bodipys, porphyrins, metal complexes and donor-acceptor systems. And I have 8+ years of experience in research involving synthesis and development of various organic molecules for material and medicinal chemistry and analytical chemistry.

I am a Post-doctoral research fellow in Depart. Of Chemistry - Ångström laboratory, Uppsala University, Sweden from April, 2019 and working on synthesis of novel organic molecules, polymers, water soluble metal-complexes and their polymers for applications in material chemistry. During my Ph.D, I am focused on synthesis and development of novel organic molecules; strong NIR absorbing Bodipy, diketopyrrolopyrrole (DPP) incorporated Ru and porphyrin dyes for dye sensitized solar cells, biological applications and also involved industrial projects. In addition, I have involved in studying the energy and electron transfer processes in donor-acceptor systems and highly conjugated hole transport materials (HTMs) for perovskite solar cell. I have 8+ years of experience in research involving development and synthesis of organic molecules, polymers, Bodipy, porphyrin and phthalocyanines, metal complexes, and analytical chemistry and studying the consequences of molecular structure design on their applications and properties. I also have experience in spectroscopic and electrochemical techniques including 1H- NMR, 13C-NMR, IR, Mass spectrometry, Cyclic Voltammetry, UV-Visible Spectrophotometer and Fluorescence Spectrophotometer. In 2015, I have visited Brunel University, Oxford University, and University of Edinburgh UK for my research. During my visit in UK, I worked few weeks in Professor Neil Robertson group, University of Edinburgh, UK and developed the fabrication skills by using organic materials. In 2018, I selected one of the Prestigious "Bhaskara Advanced Solar Energy (BASE) Fellowship Indo-US Program" for six months, under the guidance of Prof. Kirk S. Schanze at the University of Texas at San Antonia, USA. In this fellowship, I have synthesized phenanthroimidazole-phenothiazine based sensitizers.

I strongly believe this expertise also will help to synthesis of various molecules and develop the current and future generated technologies. I could utilize my Ph.D and postdoctoral research experience and also I can do and develop for improving the technology oriented research in future. So, I am confidently fit any synthetic, instrumentation and analytical position for developing technology oriented research in future for application in material, medicinal chemistry and analytical chemistry.

References:

1). **Dr.L.GIRIBABU**
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2). **Prof. Haining Tian**
Associate Professor,
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4). **Prof. Kirk S. Schanze**
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----------Have a Nice Day----------