Vinayaka H. **Damle**

Researcher · Spectrscopy | Optics | Nanometrology

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Summary

Passionate Optical Researcher with strong background in Ultra-Fast Laser Systems (f-sec. and n-sec.) Non-Linear Optics, Spectroscopy and Nano-metrology. Highly motivated scientist with 6+ years of professional experience in Academic and Industrial Research, partnering with pioneers in semiconductor technology through SRC Research Program. Driven and well-organized engineer with vast experience in designing and building complex state-of-the art experimental optical systems. A kind, honest and hardworking team player with great motivation to learn new tools and technologies.

Skills

Analytical Instruments	TEM, SEM, XRD, PL, FTIR, Raman, LFRS, CARS, SRS, SHG, EIS, IPCE, 4 Probe JV, AFM, Profilometry
Sample Preperation	PVD, CVD, FIB- Milling, Spin Coating, LB Trough
Laser System/EOM	Femto Second Laser/ NOPA (Pharos/Orpheus) CW Laser systems - Cobalt, Toptica, EOM - Qubig
Programming	Python, LaTeX
Languages	English, Kannada, Hindi, Malayalam, Tulu, Sanskrith
Soft Skills	Team management, Project Management, Communication, Problem Solving, Organisation & Prioritisation

Education

Bar-Ilan University
Ramat Gan, Israel

Ph.D. in Nanophotonics and Molecular Spectroscopy — *Jul. 2017 - Feb. 2022*

Thesis Title: Engineering Raman Spectroscopy to Probe Light Matter Interactions and Detect Materials.

National Institute of Technology - Karnataka (NITK)
Surathkal, India

M.Sc. in Physics — *Jun. 2012 - May. 2014*

- Was admitted to the program based on national level entrance test.

St. Aloysius College, Mangalore University
Mangalore, India

B.Sc. in Physical Sciences — *Jun. 2008 - May. 2012*

- Majored in Physics, Chemistry and Mathematics.

Work Experience

UNLOCK- Wageningen University and Research
Wageningen, Netherlands

Postdoctoral Researcher — *Dec. 2022 - Present*

- Design and development of spectroscopic tools for microbiology research.
- Development of Raman Assisted Cell Sorting (RACS) infrastructure for high-throughput cell separation using optical tweezers.

Faulty of Information Technology and Electrical Engineering - University of Oulu
Oulu, Finland

Visiting Researcher under Erasmus + Global Mobility Program — *Mar. 2022 - Sep. 2022*

- Design and development of spectroscopic tools for characterisation of Dye Sensitised Solar Cells (DSSCs).
- Fundamental research on DSSCs for scaling the technology from Lab to Fab.

Bar-Ilan institute of Nanotechnology and Advanced Materials - Bar-Ilan University
Ramat Gan, Israel

Doctoral Researcher — *Jul. 2017 - Feb. 2022*

- Carried out research on Engineering Spontaneous and Low-Frequency Raman Spectroscopy to facilitate selective spectral enhancement and increase/tune spectral resolution.
- Built various spectroscopic optical systems such as LFRS, CARS, SRS, SHG etc.
- Worked extensively on an SRC funded research program aimed at integrating spectroscopic tools with Atomic Force Microscope for detection of light-matter interaction at micro and nano scale.
- Hands on experience in Hi-Vac systems and characterization tools such as PVD, SEM, TEM, ALD, XRD, AFM etc.

Vagdevi Vilas Institutions
Bangalore, India

Research Facilitator — *Jun. 2016 - Jun. 2017*

- Managed a team of 10 people from interdisciplinary research domains.
- Responsibilities involved experimental design, training, and day-to-day operation of Research and Development facility.
- Worked extensively on industrial research projects and consultations involving stakeholders from industrial consortium.
- As a part of CSR, was responsible for training more than 300 students across various age groups on building scientific temper in STEM subjects.

Jeol India Pvt. Ltd. *NITK- Surathkal, India*

Facility Technologist *Jan. 2015 - Jun. 2016*

- Managed Electron Microscopy research facility which involved a team of 3 people.
- Responsible for daily operation of electron microscopes, regular maintenance and troubleshooting.
- Responsible for various collaborations involving stakeholders from academia and industry.

Vidyaniketan Public School *Bangalore, India*

Lecturer - Physics *Jun. 2014 - Jan. 2015*

- Responsible for teaching Physics (theory and laboratory) to high school students.
- Responsible for conducting regular evaluation of academic and scholastic progress of the students from grades 8 to 12.

Achievements

2022	**Erasmus + Global Mobility Grant**, University of Oulu	*Oulu, Finlad*
2019	**Erasmus + KA 107 Grant**, Hellenic Mediterranean University, & FORTH Institute	*Crete Island, Greece*
2018	**COST Action MP1403 Grant**, International Iberian Nanotechnology Laboratory	*Braga, Portugal*
2017	**Presidential Scholarship (Issued for Outstanding PhD Candidates)** , Bar-Ilan University	*Ramat Gan, Israel*
2012	**All India Rank 98**, Indian Institute of Technology, Joint Admission Test for Masters	*India*
2011	**All India Rank 369**, Indian Institute of Technology, Joint Admission Test for Masters	*India*

Extracurricular Activity

2012-2013	**Secretary**, Physics Forum, NITK	*Surathkal, India*
2012-2013	**Editor**, Physics Prime - Scientific Newsletter, NITK	*Surathkal, India*
2012-2013	**Member**, Student Council, NITK	*Surathkal, India*
2009-2010	**Student Representative**, Physical Sciences Association, St. Aloysius College	*Mangalore, India*
2009-2011	**Secretary**, Astrophysics Society (Astro-club), St. Aloysius College	*Mangalore, India*
2009-2010	**Secretary**, Linguistic Society (Samskrit Sangha), St. Aloysius College	*Mangalore, India*

Presentations, Webinars & Media Appearances

Nanotechnology Research in Israel *Podcast*

Indian Students and Researchers in Korea (ISRK) Podcast Series *Jun. 2022*

Importance of Scientific Subjects in Higher Secondary Education *Webinar*

Vishnugupta Vishva Vidya Peetam *Apr. 2022*

Career Opportunities in Physics *Webinar*

Convofusio-2022 *Dec. 2021*

Spectroscopic Tools to Understand Phase Transformation Induced Stability in MAPbI3 *INL-Braga, Portugal*

Nano-Scale Quantum Optics ESR Workshop *Sep. 2018*

Spectroscopic GIS Tagging of Chemical Effluence in Water Bodies of Suburban Bangalore *Mangalore, India*

International Lake Conference *Dec. 2016*

Electromagnetic Materials, Properties and Advancements in Piezoelectric materials *NITK- Surathkal, India*

Departmental Seminar *Jul. 2015*

Publications

Journal Papers

1. Kumar,S.,**Damle,V.H.,** Bendikov, T., Itzhak, A., Elbaum, M., Rechav, K., Houben, L., Tischler, Y., Cahen, D., Topotactic, Vapor-Phase, In Situ Monitored Formation of Ultrathin, Phase-Pure 2D-on-3D Halide Perovskite Surfaces, ACS Appl.Mater.Interfaces, 2023,15, 19, 23908–23921.

2. Aviv. H., **Damle. V.H.**, Tischler, Y. R. Low-Frequency Raman Spectroscopy – A Versatile Technique for Material Characterization and Detection, The Israel Chemist and Chemical Engineer, 2023, 9, 6-14

3. Kumar. S., Rukban. A., Sinisi J., **Damle. V.H.**, Cahen. S., (2022) Localized Heating Tailors Nucleation for Reproducible Growth of Thin Halide Perovskite Single Crystals, Cryst. Growth Des. 2022, 22, 12, 7160–7167.

4. Prabhakar R.R., Moehl. T., Friedrich. D., Kunst. M., Shukla. S., Adeleye. D., **Damle,V.H.**, Siol. S., Cui. W., Gouda, L., Suh, J., Tischler, Y. R., Krol, R., Tilley, D., (2022) Sulfur-Treatment Passivates Bulk Defects in Sb2Se3 Photocathodes for Water Splitting. Adv. Funct. Mater.2022, 2112184.

5. **Damle, V.H**., Aviv,H., Tischler, Y.R.,(2022) Identification of Enantiomers Using Low Frequency Raman Spectroscopy. Anal. Chem. 2022, 94, 7, 3188–3193.

6. Prabhakar R.R., Moehl. T., Friedrich. D., Kunst. M., Shukla. S., Adeleye. D., **Damle,V.H.**, Siol. S., Cui. W., Gouda, L., Suh, J., Tischler, Y. R., Krol, R., Tilley, D., (2021) Unravelling Defect Passivation Mechanisms in Sulfur-treated Sb2Se3. ChemRxiv. Cambridge: Cambridge Open Engage; 2021(Archived)
7. Uliel,T.B., Aviv,H., Zhou,J., Li,M., Avadyayev,S., Kapon,O., **Damle, V. H**., Yi, C., Tischler,Y.R.(2020) Raman scattering obtained from laser excitation of MAPbI3 single crystal, Applied Materials Today, 19, 100571, 2352-9407
8. Jacobi, L., **Damle, V. H**., Rajeswaran, B., & Tischler, Y. R. (2020). Low-frequency raman spectroscopy as a diagnostic tool for COVID-19 and other coronaviruses. R. Soc. Open Sci, 7, 1-28.
9. **Damle, V H**., Sinwani,M., Aviv,H., & Tischler, Y R., (2020). Microcavity Enhanced Raman Spectroscopy of Fullerene C60 Bucky Balls, Sensors, 20(5), 1470.
10. **Damle, V H**., Gouda, L., Tirosh, S., & Tischler, Y R., (2018). Structural Characterization and Room Temperature Low-Frequency Raman Scattering from MAPbI3 Halide Perovskite Films Rigidized by Cesium Incorporation, ACS Applied Energy Materials, 1, 12, 6707–6713.

Conference Proceedings

1. Feinstein, A., Yasinov, R., Karasikov, N., Kapon, O., **Damle, V. H**., Uliel, T. B., & Tischler, Y. (2019) Spectroscopic gas identification using piezo tuned micro-cavity enhanced Raman scattering. In Next-Generation Spectroscopic Technologies XII 10983,.109830M. International Society for Optics and Photonics.
2. Elias, L., **Damle, V H**., & Hegde, A C., (2016) Electrodeposited Ni-P Alloy Thin Films for Alkaline Water Splitting Reaction, IOP Conference Series: Materials Science and Engineering,149, 012179,

Posters

1. **Damle, V.H**., Aviv, H.,& Tischler, Y.R.,(2022) Identification of Enantiomers Using Low Frequency Raman Spectroscopy ICORS, Long Beach, California, USA.
2. **Damle, V.H**., Hashmi S.G.(2022).Dye-sensitized Solar Cells With Low and High Viscosity Based Electrolytes, EIC Science Day, Oulu, Finland.
3. **Damle V. H**.,Gouda, L.,Tirosh,S.,Tischler, Y.R., (2019). Structural Characterization and Room Temperature Low Frequency Raman Scattering from MAPbI3 Halide Perovskite Films Rigidized by Cesium Incorporation.OASIS-7 Conference, Tel Aviv, Israel.
4. **Damle V.H**., Gouda, L., Kalanoor. B. S., Zaban. A.,& Tischler,Y.R.,(2018) Understanding Phase Transformation Induced Stability in Organometallic Halide Perovskites, via Low-Frequency Raman Spectroscopy and Transient Lifetime Measurements, ICORS, Jeju, S.Korea.
5. Gouda,L., **Damle, V.H**., Widawer.B., Kigner,O.,& Tischler, Y.R.,(2018) MAPbI3 and MAPbBr3 Halide Perovskite Super-Lattices towards Infrared Emission Applications, MRS Annual Conference, Boston, USA.
6. **Damle, V.H**., Uliel, T.B., Aviv, H., & Tischler, Y.R., (2018). Applications of Low-Frequency Raman Spectroscopy for Nanostructure Characterization, Multi-Dimensional Metrology Conference, Applied Materials, Israel.