SUSOBHAN DAS

D.O.B:
Gender: Male
Nationality: Indian
Ph. No.
Address:
E-mail:
ORCID:

Professional Summary

A distinguished researcher with extensive experience (over 10 years) in Photonics & Nonlinear optics, excels in optical design, materials, and manufacturing techniques. Exhibits exceptional competencies in experimentation, problem analysis, innovation development, and issue resolution. Devoted to fostering collaboration within teams to achieve state-of-the-art manufacturing-driven advancements in optical design technology.

Research Experience

ELI-NP (Magurele, Romania)

Laser Engineer in the Laser System Department Dec. 2024 - Present

- Optical setup for live LIDT measurement
- Qualifying optical component for HPLS

Dausinger + Giesen GmbH (Stuttgart, Germany)

Laser Scientist in the Laser Technology Department June 2024 – Dec. 2024

- Developing optical setup and testing thin disk laser
- Process control of thin disk development

Aalto University, Electronics and Nanoengineering Dept. (Espoo, Finland)

Academic Visitor Jan. 2024 – Dec. 2024

Postdoctoral Researcher in Photonics Group July 2018 – Dec. 2023

- Linear and nonlinear optics with 2D layered materials and mixed dimensional heterostructures
- Deep Ultraviolet Light and Coherent Broadband generation with 2D materials
- 2D-material based on-chip integrated devices
- Photodetectors with single junction 2D-heterstructure
- Coordinating multiple projects in the field of 2D-materials-based optoelectronics and nonlinear optics
- Co-PI of a project with collaboration of VTT and coordinating activities with students and collaborator

University of Houston, Biomedical Engineering Dept. (Houston, USA)

Postdoctoral Fellow in The Biomedical Optics Laboratory Jan. 2017 – July. 2018

- Participant in multiple projects on Optical Coherent Tomography / Elastography
- System automation, algorithm development, statistical analysis, and signal processing

The University of Kansas, Electrical Engineering & Computer Science Dept. (Kansas, USA)

Research Assistant Jan. 2014 – Dec. 2016

- Modeling of graphene assisted waveguide-based optoelectronic devices
- Optical setup development and testing of integrated optoelectronic chips
- Free-space nonlinear optics with 2D and bulk materials.

Education

PhD	The University of Kansas, Electrical Engineering & Computer Science Dissertation: "Tunable Nano-photonics Devices", CGPA: 4/4	2016
M.Tech	Indian Institute of Technology Kharagpur, RF & Microwave Engineering Thesis: "Theoretical Investigations on Plasmonic Photonic Crystal Fibers", CGPA: 8.37/10	2013
B.Tech	Jalpaiguri Govt. Engineering College, Electronics & Communication Engineering Project: "Software Application of Viterbi Algorithm in Error correction of Channel Coding", CGPA: 8.32/10	2009

Professional Skills

- Experimental Scientist
- Optics & Photonics (9 years' experience)
- CO-PI of Academy of Finland Project
- Project Management (EU / Academy of Finland)
- Supervision & Teaching (9 years' experience)

Research Skills

- Electro-Optical System Design & Measurements
- Silicon Photonics & Photonic Integrated Circuit
- Nonlinear Optics and 2D-materials
- Bio-Imaging / Sensing
- Simulation of RF/Optical device modeling

Technical Skills

Software

- MATLAB & Python
- COMSOL Multiphysics & Lumerical
- HFSS & CST
- LabView
- CAD & Image Editing Software

Hardware

- SNOM, Raman, AFM, SEM, CVD, EBL, ALD
- Femtosecond Laser, Supercontinuum Laser
- Multiphoton Imaging
- FD-OCT, SS-OCT
- Electro-optic Measurement System

Personal Research Grant

Position: Co-Principal Investigator
Project Name: Novel optical isolators to continue Moore's law in photonics integration (NOIMO)
Funding Agency: Academy of Finland (Grant No. 333982),
Total Funding: €1.2M
Duration: 01.09.2020 – 31.08.2024
Institutions: Aalto University, and VTT
Co-Investigator: Dr. Timo Aalto (VTT)

Project Description:

This project aims to develop integrated optical isolators for silicon photonic circuits by enabling Faraday rotation in low-loss silicon waveguides, avoiding the need for exotic materials. The work is conducted at Micronova, Finland's National Research Infrastructure for micro- and nanotechnology.

Responsibilities and Key Contributions:

- Co-led the scientific and strategic direction of a multi-institutional photonics integration project.
- Designed and simulated 3 μm SOI waveguides integrated with anisotropic 2D materials such as MoO_3 and ReS_2.
- Developed protocols for 2D material transfer onto SOI waveguides using deterministic techniques.
- Performed optical characterization, including polarization shift measurements of 2D-anisotropic materials and hybrid waveguide structures.

- Coordinated cross-functional collaboration between Aalto University and VTT teams.
- Contributed to research dissemination, reporting, and mentoring of junior researchers.

Research Output

Total citation: **719**, h-index: **19**, No. of Journal articles: **39**. No. of Conference paper: **19**
Google scholar link: https://scholar.google.com/citations?user=HkZdn_oAAAAJ&hl=en

Most Significant work

- Broadband miniaturized spectrometers with a van der Waals tunnel diode (Nat. Com., 2024)
- Octave-spanning coherent supercontinuum generation (Light: Science & Applications, 2025)
- Transient absorption of MoS2 in sub-bandgap region (Light: Science & Applications, 2021)
- Analysis of surface enhanced Raman spectroscopy
- Complex refractive index of Graphene
- Electrical control on nonlinear optics of 1L-MoS2
- Design of graphene based plasmonic modulators

Supervision & Teaching Experience

- Guided Robin Ångerman for master's project at Aalto University (Oct. 2018 to July 2019)
- Guided Vadiraj Pralhad Haribal and Sasank Syamala for their master's projects at the University of Kansas (Aug. 2014 to July 2015)
- Guest Lecture on COMSOL Simulation (ELEC-E3250 for PG, 2022)
- Guest Lecture on Plasmonics and Plasmonic Sensors (ELEC-E9250 for PG, 2019)
- Guest Lecture on Plasmonics and Couple Mode Theory (for PG, 2013)

Teaching Assistant (2012 to 2013)

- Subject: RF and Microwave Engineering (EC31005 for UG)
- Laboratory: RF and Microwave Circuits Lab. (EC69019 for PG), Antenna and EMI/EMC Lab. (EC69021 for PG), Design Lab. (EC69012 for PG), Microwave Lab. (EC39005 for UG)

Awards

- Graduate Aptitude Test in Engineering Scholarship (India, 2011-2013, Total worth 192K Rupee)
- Graduate Research Assistant fund (USA, 2014-2016)
- Graduate Scholarly Presentation Travel Fund (USA, 2014)
- Electronics and Nanoengineering Publication Bonus (Finland, 2019, 2020, 2021, 2022)

Outreach

- Public presentation at QTF on Nonlinear optics for future devices (media link).
- Invited talk in ECLEO 2019
- Science exhibition for high school students at the University of Houston and Aalto University

Active Reviewer

- Light: Science & Applications
- Scientific reports
- iScience
- The Journal of Applied Physics
- IEEE
- OSA
- Journal of Microsystems & Nanoengineering
- Chinese Optics Letters

Achievements in the topics of the open vacancy:

1. Advancing High-Power Laser Stability through Live LIDT Measurement and Component Qualification

As a Laser Engineer at **ELI-NP (Extreme Light Infrastructure - Nuclear Physics)**, I am currently contributing to one of the world's most powerful laser facilities. His primary achievement in this role involves the development of a sophisticated optical setup for **live Laser-Induced Damage Threshold (LIDT) measurement**. This is critical for high-power laser systems (HPLS) where optical components must withstand extreme peak powers. By qualifying optical components specifically for HPLS, my work ensures the long-term operational integrity and reliability of the petawatt-scale laser systems used in frontier physics research.

2. Innovation in Thin-Disk Laser Technology and Process Control

During my tenure at **Dausinger + Giesen GmbH**, a leader in high-power disk lasers, I excelled in the experimental development and process control of **thin-disk laser technology**. My achievements centered on the precise design and testing of optical setups tailored for thin-disk lasers, which are renowned for their ability to provide high average power while maintaining excellent beam quality. My work on the "process control of thin disk development" directly addresses the thermal management and power-scaling challenges inherent in industrial-grade high-power laser systems.

3. Engineering Nonlinear Optical Responses in 2D-Heterostructure Integrated Devices

A significant portion of my research at **Aalto University** was dedicated to pioneering the use of **2D layered materials** (like MoS_2 and graphene) for high-performance nonlinear optics. I successfully demonstrated the generation of **Deep Ultraviolet (DUV) Light** and coherent broadband light through 2D-material-based on-chip integrated devices. This achievement is pivotal for the development of miniaturized, high-efficiency optical modulators and broadband light sources. The work in deterministic "defect-engineering" with femtosecond lasers allowed for a **50-fold enhancement** in third-harmonic generation, showcasing a method to control and amplify nonlinear optical responses at the atomic scale. Here I gained experience on multiple device preparation process inside clean room using EBL, ALD, CVD etc., and the device testing with AFM, SNOM, Raman analysis and ultrafast laser.

ANNEX 1

MINIMAL STANDARDS APPLICABLE AT IFIN-HH
for being awarded the professional ranks of
First Stage Researcher (Research Scientist - CS) and
Recognised Researcher (3rd rank Research Scientist - CS III)

Approved in the meeting of IFIN-HH Scientific Council of 27.02.2025 (SC Decision No. 5/27.02.2025)

Minimal Standards (at IFIN-HH)

1) IFIN-HH shall establish threshold scores ($P_{threshold}$) according to the table below.

	First Stage Researcher (CS)	Recognised Researcher (CSIII)
$P_{threshold}$	0.50	1.50

2) During the evaluation of the candidate's scientific activity, the score P is determined in the following manner:

$P=P_1+P_2$, where

P_1 : for articles where the candidate is an author, but not a first author or a corresponding author: $P_1 = \sum_i a_i/n_i^{ef}$

P_2 : for articles where the candidate is a first author or a corresponding author: $P_2 = \sum_i a_i$

a_i = is the absolute Article influence score of the scientific journal where article i was published, according to its year of publication as per http://www.eigenfactor.org/ for articles published until 2006 and Journal Citation Report (Web of Science) starting from 2007; if the publishing year cannot be not found in the database, the closest year shall be chosen.

n_i^{ef} = is the actual number of authors of item *i* and is determined as follows:

n_i	if $n_i \leq 5$
$(n_i + 5)/2$	if $5 < n_i \leq 15$
$(n_i + 15)/3$	if $15 < n_i \leq 75$
$(n_i + 45)/4$	if $n_i > 75$

where n_i is typically the number of authors of item i. In the case of HEPP (High Energy Particle Physics) publications with a large number of authors, if the article is based on an internal note of the collaboration and the candidate is a co-author of this internal note, then n_i^{ef} can be given by the number of authors in the internal note.

The capacity as first author or corresponding author shall be determined based on the mentions in the article. Articles where authors are indicated in the alphabetical order of their name and the candidate is a first author exclusively due to their name and the alphabetical order shall not be taken into account. In the case of HEPP publications with a large number of authors, if the article is based on an internal note whose approval for sending to publication was upheld by the author, then the author is considered first author.

Minimal Standards Self-Assessment Form:

Nr	Category of Articles	Position in the List of Papers	a_i	n_i	n_i^{ef}	a_i/n_i^{ef}
1	Giant Multiphoton Luminescence and Band Renormalization with Hot Electron–Hole Plasma in Multilayer GaSe Y. Dai, J. Hader, Y. Zhang, L. Du, H. Fernandez, Y. Wang, X. Bai, Y. Wang, S. Das, J.V. Moloney, Z. Sun Advanced Optical Materials, p.e01603., 2025	9	1.648	11	8	0.206
2	Enhanced Nonlinear Optical Responses in MoS2 via Femtosecond Laser-Induced Defect-Engineering S. T. M. Akkanen, J. C. Arias-Muñoz, A. V. Emelianov, K. K. Mentel, J. V. Tammela, M. Partanen, S. Das, A. Faisal, M. Pettersson, Z. Sun Advanced Functional Materials.Vol. 34, No. 46, p. 2406942, 2024.	7	3.695	10	7.5	0.492667
3	Light-Driven Multidirectional Bending in Artificial Muscles Z. Madani, P. E. S. Silva, H. Baniasadi, M. Vaara, S. Das, J. C. Arias, J. Seppälä, Z. Sun, J. Vapaavuori *Advanced Materials Vol. 36, no. 38, p. 2405917, 2024.*	5	6.075	9	7	0.867857
4	Interlayer Coupling Limit in Artificially Stacked MoS2 Homojunctions J. C. Arias, H. Kaaripuro, Y. Zhang, S. Das, H. A Fernandez, Z. Sun *Advanced Materials Vol. 34, No. 11, p. 2310365, 2024.*	4	3.695	6	5.5	0.671818
5	Broadband miniaturized spectrometers with a van der Waals tunnel diode Md G. Uddin, S. Das, A. M. Shafi, L. Wang, X. Cui, F. Nigmatulin, F. Ahmed, A. C Liapis, W. Cai, Z. Yang, H. Lipsanen, T. Hasan, H. H. Yoon, Z. Sun Nature Communications, Vol. 15, no. 571, p. 571, 2024.	2	5.622	14	9.5	0.591789
6	Strain Engineering for Enhancing Carrier Mobility in MoTe2 Field-Effect Transistors A. M. Shafi, Md G. Uddin, X. Cui, F. Ali, F. Ahmed, M. Radwan, S. Das, N. Mehmood, Z. Sun, H. Lipsanen Advanced Science, Vol. 10, no. 29, p. 230343, 2023.	7	3.556	10	7.5	0.474133
7	Gold Au(I)6 Clusters with Ligand-Derived Atomic Steric Locking: Multifunctional Optoelectrical Properties and Quantum Coherence S. Chandra, A. Sciortino, S. Das, F. Ahmed, A. Jana, J. Roy, D. Li, V. Liljeström, H. Jiang, L-S. Johansson, X. Chen, Nonappa, M. Cannas, T. Pradeep, B. Peng, R. HA Ras, Z. Sun, O. Ikkala, F. Messina Advanced Optical Materials, Vol. 11, No. 8, p. 2202649, 2023	3	1.934	19	11.3	0.17115
8	Optical control of high-harmonic generation at the atomic thickness Y. Wang, F. Iyikanat, X. Bai, X. Hu, S. Das, Y. Dai, Y. Zhang, L. Du, S. Li, H. Lipsanen, F. J. García de Abajo, Z. Sun Nano Letters, Vol. 22, No. 21, p. 8455–8462, 2022	5	2.955	12	8.5	0.347647
9	Direct Epitaxial Growth of InP Nanowires on MoS2 with Strong Nonlinear Optical Response A. M. Shafi, S. Das, V. Khayrudinov, Er-X. Ding, Md G. Uddin, F. Ahmed, Z. Sun, H. Lipsanen ACS Chemistry of Materials, Vol. 34, No. 20, p. 9055–9061, 2022	2	2.170	8	6.5	0.333846
10	Coherent modulation of chiral nonlinear optics with crystal symmetry Y. Zhang, X. Bai, J. Arias Muñoz, Y. Dai, S. Das, Y. Wang, Z. Sun Light: Science & Applications, Vol. 11, No. 1, p. 216, 2022	5	5.260	7	6	0.876667
11	Engineering the Dipole Orientation and Symmetry Breaking with Mixed-Dimensional Heterostructures M. G. Uddin, S. Das, A. M. Shafi, V. Khayrudinov, F. Ahmed, H. Fernandez, L. Du, H. Lipsanen, Z. Sun Advanced Science, Vol. 9, No. 20, p.2200082, 2022	2	3.548	9	7	0.506857

12	Inducing Strong Light–Matter Coupling and Optical Anisotropy in Monolayer MoS2 with High Refractive Index Nanowire A. M. Shafi, F. Ahmed, H.A. Fernandez, M.G. Uddin, X. Cui, S. Das, Y. Dai, V. Khayrudinov, H. H. Yoon, L. Du, Z. Sun, H. Lipsanen ACS applied materials & interfaces, Vol. 14, No. 27, p. 31140-31147, 2022	6	1.660	12	8.5	0.195294
13	Switchable photoresponse mechanisms implemented in single van der Waals semiconductor/metal heterostructure M. Du, X. Cui, H. H. Yoon, S. Das, MD. G. Uddin, L. Du, D. Li, Z. Sun ACS nano, Vol. 16, No. 1, p. 568-576, 2022	4	3.712	8	6.5	0.571077
14	On-chip photonics and optoelectronics with a van der Waals material dielectric platform X. Cui, M. Du, S. Das, H. H. Yoon, V. Y. Pelgrin, D. Li, Z. Sun Nanoscale, Vol. 14, No. 26, p. 9459-9465, 2022	3	1.258	7	6	0.209667
15	Probing Electronic States in Monolayer Semiconductors through Static and Transient Third-Harmonic Spectroscopies Y. Wang, F. Iyikanat, H. Rostami, X. Bai, X. Hu, S. Das, Y. Dai, L. Du, Y. Zhang, S. Li, H. Lipsanen, F. J. Garcia de Abajo, Z. Sun Advanced Materials, Vol. 34, No. 3, p. 2107104, 2022	6	6.781	13	9	0.753444
16	Broadband Plasmon-Enhanced Four-Wave Mixing in Monolayer MoS2 Y. Dai, Y. Wang, S. Das, S. Li, H. Xue, A. Mohsen, Z. Sun Nano Letters, Vol. 21, No. 14, p. 6321-6327, 2021	3	3.104	7	6	0.517333
17	Giant all-optical modulation of second-harmonic generation mediated by dark excitons Y. Wang, S. Das, F. Iyikanat, Y. Dai, S. Li, X. Guo, X. Yang, J. Cheng, X. Hu, M. Ghotbi, F. Ye, H. Lipsanen, S. Wu, T. Hasan, X. Gan, K. Liu, D. Sun, Q. Dai, F. J. Garcia de Abajo, J. Zhao, Z. Sun ACS photonics, Vol. 8, No. 8, p. 2320-2328, 2021	2	1.898	21	12	0.158167
18	Luminescent gold nanocluster-methylcellulose composite optical fibers with low attenuation coefficient and high photostability V. Hynninen, S. Chandra, S. Das, M. Amini, Y. Dai, S. Lepikko, P. Mohammadi, S. Hietala, R. HA Ras, Z. Sun, O. Ikkala, Nonappa Small, Vol. 17, No. 27, p. 2005205, 2021	3	2.448	12	8.5	0.288
19	Single-step chemical vapour deposition of anti-pyramid MoS 2/WS 2 vertical heterostructures X. Bai, S. Li, S. Das, L. Du, Y. Dai, L. Yao, R. Raju, M. Du, H. Lipsanen, Z. Sun Nanoscale, Vol. 13, No. 8, p. 4537-4542, 2021	3	1.329	10	7.5	0.1772
20	Electrical Control of Interband Resonant Nonlinear Optics in Monolayer MoS2 Y. Dai, Y. Wang, S. Das, H. Xue, X. Bai, E. Hulkko, G. Zhang, X. Yang, Q. Dai, Z. Sun ACS nano, Vol. 14, No. 7, p. 8442-8448, 2020	3	3.681	10	7.5	0.4908
21	Difference frequency generation in monolayer MoS 2 Y. Wang, M. Ghotbi, S. Das, Y. Dai, S. Li, X. Hu, X. Gan, J. Zhao, Z. Sun Nanoscale, Vol. 12, No. 38, p. 19638-19643, 2020	3	1.470	9	7	0.21
22	Assessing colitis ex vivo using optical coherence elastography in a murine model A. Nair, C. H. Liu, M. Singh, S. Das, T. Le, Y. Du, S. Soomro, S. Aglyamov, C. Mohan, K. V. Larin Quantitative Imaging in Medicine and Surgery, Vol. 9, No. 8, p. 1429, 2019	4	0	10	7.5	0
23	All-optically controlled slow and fast lights in graphene-coated tilted fiber Bragg grating Y. Wang, B. Jiang, S. Das, Q. Zhao, X. Gan, J. Zhao Applied Physics Express, Vol. 12, No. 7, p. 072010, 2019	3	0.688	6	5.5	0.125091
24	Longitudinal elastic wave imaging using nanobomb optical coherence elastography	4	0.911	9	7	0.130143

	C. H. Liu, D. Nevozhay, H. Zhang, S. Das, A. Schill, M. Singh, S. Aglyamov, K. V Sokolov, K. V. Larin Optics Letters, Vol. 44, No. 12, p. 3162-3165, 2019					
25	Nanobomb optical coherence elastography C. H. Liu, D. Nevozhay, A. Schill, M. Singh, S. Das, A. Nair, Z. Han, S. Aglyamov, K. V. Larin, K. V. Sokolov Optics Letters, Vol. 43, No. 9, p. 2006-2009, 2018	5	0.918	10	7.5	0.1224
26	Quantitative analysis of surface enhanced Raman spectroscopy of Rhodamine 6G using a composite graphene and plasmonic Au nanoparticle substrate R. Goul, S. Das, Q. Liu, M. Xin, R. Lu, R. Hui, J. Z. Wu Carbon, Vol. 111, p. 386-392, 2017	2	1.390	7	6	0.231667
27	Direct observation of bulk second-harmonic generation inside a glass slide with tightly focused optical fields X. Wang, S. Fardad, S. Das, A. Salandrino, R. Hui Physical Review B, Vol. 93, No. 16, p. 161109, 2016	3	1.227	5	5	0.2454
28	All-optical short pulse translation through cross-phase modulation in a VO2 thin film S. Fardad, S. Das, A. Salandrino, E. Breckenfeld, H. Kim, J. Wu, R. Hui Optics Letters, Vol. 41, No. 2, p. 238-241, 2016	2	0.882	7	6	0.147
29	Complex refractive index tunability of graphene at 1550 nm wavelength F. Xu, S. Das, Y. Gong, Q. Liu, H. C. Chien, H. Y. Chiu, J. Wu, R. Hui Applied Physics Letters, Vol. 106, No. 3, p. 031109, 2015	2	1.045	8	6.5	0.160769
30	Theory and design of off-axis microring resonators for high-density on-chip photonic applications R. Haldar, S. Das, S. K. Varshney Journal of Lightwave Technology, Vol. 31, No. 24, p. 3976-3986, 2013	2	0.88	3	3	0.293333
	SCORE (P1)					**10.567216**
1	Nanoscale thickness Octave-spanning coherent supercontinuum light generation S. Das, M.G. Uddin, D. Li, Y. Wang, Y. Dai, J. Toivonen, H. Hong, K. Liu, Z. Sun Light: Science & Applications, Vol. 14, No. 1, p. 41, 2025	1	5.565	9		
2	Ultrafast transient sub-bandgap absorption of monolayer MoS2 S. Das, Y. Wang, Y. Dai, S. Li, Z. Sun Light: Science & Applications, Vol. 10, No. 1, p. 27, 2021	1	4.917	5		
3	Laser-induced elastic wave classification: thermoelastic versus ablative regimes for all-optical elastography applications S. Das, A. Schill, C. H. Liu, S. Aglyamov, K. V. Larin Journal of biomedical optics, Vol. 25, No. 3, p. 035004-035004, 2020	1	0.690	5		
4	Tunable hyperbolic photonic devices based on periodic structures of graphene and HfO2 S. Das, A. Salandrino, R. Hui JOSA B, Vol. 35, No. 10, p. 2616-2624, 2018	1	0.530	3		
5	Modified wavelength scanning interferometry for simultaneous tomography and topography of the cornea with Fourier domain optical coherence tomography S. Das, C. H. Liu, M. Singh, M. D. Twa, K. V. Larin Biomedical Optics Express, Vol. 9, No. 9, p. 4443-4458, 2018	1	0.893	5		
6	Nanophotonic modal dichroism: mode-multiplexed modulators S. Das, S. Fardad, I. Kim, J. Rho, R. Hui, A. Salandrino Optics Letters, Vol. 41, No. 18, p. 4394-4397, 2016	1	0.882	6		
7	Simulation of the impact of Si shell thickness on the performance of Si-coated vertically aligned carbon nanofiber as Li-ion battery anode S. Das, J. Li, R. Hui Nanomaterials, Vol. 5, No. 4, p. 2268-2278, 2015	1	0.687	3		

8	Near-infrared electro-optic modulator based on plasmonic graphene S. Das, A. Salandrino, J. Z. Wu, R. Hui Optics Letters 40 (7), 1516-1519, 2015	1	0.970	4		
9	Triple-core collinear and noncollinear plasmonic photonic crystal fiber couplers S. Das, R. Haldar, S. K. Varshney Applied optics, Vol. 52, No. 34, p. 8199-8204, 2013	1	0.465	3		
SCORE (P2)			**15.599**			

P=P1+P2= 10.567216+15.599 = 26.166216

Date: 27.12.2025

Name: Susobhan Das

Signature:

List of Publication

Peer Reviewed Journals

1. **S. Das**, *et. al.*, "Nanoscale thickness Octave-spanning coherent supercontinuum light generation", *Light: Science & Applications*, Vol. **14**. No. 1. p. 41, 2021. **I.F.: 20.26. doi.org/10.1038/s41377-024-01660-6**

2. **S. Das**, Y. Wang, Y. Dai, Z. Sun, "Ultrafast transient sub-bandgap absorption of monolayer MoS_2", *Light: Science & Applications*, Vol. **10**. No. 1, p.27, 2021. **I.F.: 20.26. doi.org/10.1038/s41377-021-00462-4.**

3. M. G. Uddin, **S. Das, et. al.,** "Broadband miniaturized spectrometers with a van der Waals tunnel diode", Nature Communications, Vol. **15**, no. 571, p. 571, 2024. **I.F.: 16.6. doi.org/10.1038/s41467-024-44702-8.**

4. Y. Wang, **S. Das**, *et al.*, "Giant All-Optical Modulation of Second-Harmonic Generation Mediated by Dark Excitons", *ACS Photonics*, Vol. **8**. No. 8. p. 2320–2328, 2021. **I.F.: 7.529. doi.org/10.1021/acsphotonics.1c00466.**

5. F. Xu, **S. Das**, Y. Gong, Q. Liu, H. C. Chien, H. Y. Chiu, *et al.* "Complex refractive index tunability of graphene at 1550 nm wavelength", *Applied Physics Letters*, Vol. **106**, p. 031109, 2015. **I.F.: 3.971. doi.org/10.1063/1.4906349.**

6. **S. Das**, A. Salandrino, J. Z. Wu,and R. Hui, "Near-infrared electro-optic modulator based on plasmonic graphene", *Optics Letters* ,Vol. **40**, No. 7 , p. 1516-1519, 2015. **I.F.: 3.56. doi.org/10.1364/OL.40.001516.**

7. **S. Das**, S. Fardad, I. Kim, J. Rho, R. Hui, and A. Salandrino, "Nanophotonic Modal Dichroism: Mode-Multiplexed Modulators", *Optics Letters*, Vol. **41**, No. 18, pp. 4394-4397, 2016. **I.F.: 3.56. doi.org/10.1364/OL.41.004394.**

8. R. Goul, **S. Das**, Q. Liu, *et al.* "Quantitative analysis of surface enhanced Raman spectroscopy of Rhodamine 6G using a composite graphene and plasmonic Au nanoparticle substrate", *Carbon*, Vol. **111**, p. 386-392, 2017. **I.F.: 11.31. doi.org/10.1016/j.carbon.2016.10.019.**

9. **S. Das**, A. Salandrino, and R. Hui. "Tunable hyperbolic photonic devices based on periodic structures of graphene and HfO_2", *JOSA B*, Vol. **35**, No. 10, p. 2616-2624, 2018. **I.F.: 2.058. doi.org/10.1364/JOSAB.35.002616.**

10. R. Halder, **S. Das** and S. K. Varshney, "Theory and Design of Off-axis Microring Resonators for High-Density On-chip Photonic applications", *IEEE JLT*, Vol. **31**, No. 34, p. 3976-3986, 2013. **I.F.: 4.142. doi.org/10.1109/JLT.2013.2278552**

11. Md. G. Uddin, **S. Das**, *et al.* "Engineering the Dipole Orientation and Symmetry Breaking with Mixed-Dimensional Heterostructures", *Advanced Science*, Vol. **9**. No. 20, p. 2200082, 2022. **I.F.: 17.52. doi.org/10.1002/advs.202200082.**

12. X. Cui, M. Du, **S. Das**, *et al.* "On-chip photonics and optoelectronics with a van der Waals material dielectric platform", *Nanoscale*, Vol. **14**. No. 26, p. 9459-9465, 2022. **I.F.: 8.307. doi.org/10.1039/D2NR01042A.**

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