

## **Unit Name**

Femtosecond Spectroscopy Unit  
Professor Keshav M Dani

## **Research Personnel**

Julien Madeo, Staff Scientist  
Ka Lun Michael Man, Staff Scientist  
Takumi Fukuda, Postdoctoral Scholar  
Sebastien Roux, Postdoctoral Scholar  
Viktoras Lisicovas, Postdoctoral Scholar  
Gyan Prakash, Postdoctoral Scholar  
Jacques Hawecker, Postdoctoral Scholar  
Ruotian Chen, Fellow  
Joanna Nadolna, Fellow  
Maria Carla Lupu, PhD Student  
Tatsunosuke Hanano, PhD Student  
Nanami Tomoda, PhD Student  
Harley Suchiang, PhD Student  
Xing Zhu, PhD Student  
Prajakta Kokate, PhD Student  
Amrita Mitra, PhD Student  
Benedikt Silas Capanni, Research Intern  
Takeru Nakano, Research Intern  
Ruiqi Tang, Research Intern

## **Scholarly Contributions and Creative Productions (by Faculty)**

### **Journal Article**

1. Dani, K. M.  
Driving Floquet Physics with Excitonic Fields. Nature Physics 2026.  
<https://www.nature.com/articles/s41567-025-03132-z>
2. Dani, K. M.  
Studying the Effect of EDAl Passivation on Surface Defects in Triple Cation Mixed Halide Perovskite with PEEM. Ultramicroscopy 2025.  
<https://doi.org/10.1016/j.ultramic.2025.114261>
3. Dani, K. M.  
Floquet States in Graphene Revealed at Last. nature physics 2025.  
<https://www.nature.com/articles/s41567-025-02939-0>

4. Dani, K. M.  
Revealing Effect of Surface Hydroxyl Variation on Charge Spatiotemporal Dynamics in Photocatalysis. Journal of the American Chemical Society 2025.  
[Revealing Effect of Surface Hydroxyl Variation on Charge Spatiotemporal Dynamics in Photocatalysis | Journal of the American Chemical Society](#)
5. Dani, K. M.  
A Holistic View of the Dynamics of Long-Lived Valley Polarized Dark Excitonic States in Monolayer WS<sub>2</sub>. Nature Communications 2025.  
<https://www.nature.com/articles/s41467-025-61677-2>

#### **Poster Presentation at Conference**

1. Dani, K. M.  
A Holistic Views of the Dynamics of Long-Lived, Valley-Polarized Dark Excitons in 1L WS<sub>2</sub>. Forest JST Panel meeting (創発の場) 2025.

#### **Presentation at Conference**

1. Dani, K. M.  
A Journey to Time Resolved Momentum Microscopy – the Key Elements of Support!. International Conference on Science and Technology for Sustainability 2025 - Strengthening research capability and promoting international talent mobility and circulation: a focus on early career researchers who will lead the academia of the future /国際会議「持続可能な社会のための科学と技術に関する国際会議 2025『将来の学術を担う若手研究者を中心とした研究力強化と頭脳循環を目指して』 2026.
2. Dani, K. M.  
A Journey through Momentum Space, Stanford US. Heinz Workshop 2026.
3. Dani, K. M.  
Driving Electronic Structure Changes with Intense Excitonic Fields. JSAP Fall 2025 2025.
4. Dani, K. M.  
The Cinematography of Electrons. OIST-ERS IN THE BAY AREA 2025.
5. Dani, K. M.  
Imaging Dark Excitons in Momentum Space. Forest Stage Gate Interview (創発 ステージゲート審査進捗会議) 2025.
6. Dani, K. M.  
Driving Electronic Structure Changes with Exciton-Floquet. 10th JSAP Photonics 2025.
7. Dani, K. M.  
Driving Electronic Structure Changes with Intense Excitonic Fields. Light-induced Emergent Phenomena in Low-dimensional Materials 2025.
8. Dani, K. M.  
Progress in Momentum Microscopy Measurements on 2D and Magnetic Semiconductors. Mini-symposium on magnetic semiconductors and nonequilibrium dynamics 2025 2025.

#### **Seminars**

1. Dani, K. M.  
Resolving Electrons in Space, Time, Momentum and Energy (Tokyo Univ). 2025.

**Scholarly Contributions (by Unit Members)**

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Takumi Fukuda	Journal Article	Role of interlayer shear phonons on lattice symmetry switching in the transition metal dichalcogenide WTe <sub>2</sub>	Physics Review B		2025
Harley Suchiang	Journal Article	Investigating charge accumulation mechanisms in organic materials via slow transient emission spectroscopy	Science Advances	American Association for the Advancement of Science (AAAS)	2025
Prajakta Kokate	Poster Presentation at Conference	PEEM of passivated perovskite	Hybrid organic photovoltaics		2025
Maria Carla Lupu	Poster Presentation at Conference	High harmonic generation with a sub- $\mu$ j microplasma source	Mini-symposium on magnetic semiconductors and nonequilibrium dynamics 2025		2025
Tatsunosuke Hanano	Presentation at Conference	Two-Color Microplasma-Based THz Radiation at MHz Repetition Rate	Mini-symposium on magnetic semiconductors and nonequilibrium dynamics 2025		2025
Nanami Tomoda	Presentation at Conference	Band structure of bulk MnPS <sub>3</sub> and NiPS <sub>3</sub> under Néel temperature	Mini-symposium on magnetic semiconductors and nonequilibrium dynamics 2025		2025
Joanna Nadolna	Presentation at Conference	Up-Conversion-Enhanced Photocatalytic Activity of NaLuF <sub>4</sub> :Yb:Ho@NaLuF <sub>4</sub> :Yb:Nd@TiO <sub>2</sub> Core-Shell Structures under Visible-NIR Light	ICONN	ICONN	2026
Maria Carla Lupu	Presentation at Conference	Sub- $\mu$ J driven high harmonic generation with a $\mu$ m-order focal spot diameter	The 86th JSAP autumn meeting	JSAP	2025
Joanna Nadolna	Presentation at Conference	Influence of the Up-Conversion Effect on the Photocatalytic Activity of NaLuF <sub>4</sub> :Yb:Ho@NaLuF <sub>4</sub> :Yb:Nd@TiO <sub>2</sub> Core-Shell Structures under Visible Light Irradiation	The 86th JSAP autumn meeting	JSAP	2025
Harley Suchiang	Presentation at Conference	Study of Gated 2D Semiconductors using Time-Resolved ARPES	JSAP-Optica Joint Symposia 2025	Optica Publishing Group	2025
Xing Zhu	Presentation at Conference	Valley polarized exciton dynamics in momentum space	Ultrafast Dynamics and Ultrafast Bandgap Photonics XIII Crete Symposium	American Physical Society	2025

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Xing Zhu	Presentation at Conference	Momentum-resolved study of dark excitons in 2D semiconductors by TR-ARPES	APS Global Physics Summit, Anaheim, 2025		2025
Xing Zhu	Presentation at Conference	Study of Spin-Dark Excitons in 2D Semiconductors by time-resolved Momentum Microscopy	JSAP-Optica Joint Symposia, Nagoya, 2025	JSAP-Optica	2025
Nanami Tomoda	Presentation at Conference	Imaging of electronic structure in a two-dimensional magnetic insulator using TR-ARPES	The 86th JSAP autumn meeting		2025
Prajakta Kokate	Poster Presentation at Conference	PEEM of EDAl passivated perovskite	The 86th JSAP autumn meeting		2025
Takumi Fukuda	Presentation at Conference	単層 WSe <sub>2</sub> における自由キャリアから励起子への遷移過程の運動量ダイナミクス (Ultrafast momentum dynamics of the transition from free carriers to excitons in a monolayer WSe <sub>2</sub> )	応用物理学会 (Japan Society of Applied Physics)		2025
Takumi Fukuda	Presentation at Conference	二次元半導体における自由キャリア・励起子遷移過程のエネルギー・運動量ダイナミクス	非平衡固体物性の最前線 2025		2025
Nanami Tomoda	Presentation at Conference	時間分解 ARPES を用いた 2 次元反強磁性体の電子状態イメージング	非平衡固体物性の最前線 2025		2025
Michael Man	Presentation at Conference	From Bright to Dark: Resolving Valley Depolarization Pathways in Monolayer WS <sub>2</sub>	MSSp2025: Materials Science and Spintronics for Sustainable Futures from Tohoku		2025
Jacques Hawecker	Presentation at Conference	Photoemission electron microscopy imaging of moiré ferroelectricity in a twisted hBN heterostructure	APS March Meeting	APS	2025
Michael Man	Presentation at Conference	Deciphering the Valley Depolarization Dynamics in WS <sub>2</sub> with TR-ARPES	Strong correlations and angle-resolved photoemission (CORPES25)		
Xing Zhu	Presentation at Conference	Direct imaging of valley-polarized excitons in 2D semiconductors	APS March Meeting	APS	2025
Julien Madeo	Presentation at Conference	A holistic view of the dynamics of excitons in 2D semiconductors	NPG Asia Materials Symposium		2025
Tatsunosuke Hanano	Presentation at Conference	Two-Color Laser-Induced Microplasma THz Radiation at MHz Repetition Rate	JSAP	JSAP	2025

### **Honors, Awards & Fellowships**

Term 2 2025 - Ongoing      2025 Optica Fellow, 2025 年度 Optica フェロー, 2024, Optica [Fiscal Year: 2025-01-16]

### **Workshops and Seminars [Organized and Hosted by Faculty/Units]**

Speaker Name(s)	Title	Location	Date
Bobby Kathuri	Industrial Scale Brain Mapping with PEEM	zoom-A613	2025-11-19
Hoshu Hiyane	Emergence of nonequilibrium Lieb excitations in periodically driven strongly interacting boons	Zoom-A613	2025-07-31
Soumyabrata Roy	Multiscale Materials and Process Engineering for Efficient CO2 Recycling	Zoom-A613	2025-07-30
Sang Eun Lee	Robust magnetic order upon ultrafast excitation of an antiferromagnet	Zoom-A613	2025-05-28
Kiban A workshop	Mini-symposium on magnetic semiconductors and nonequilibrium dynamics 2025	OIST Meeting room #1	2025-07-02