MD WAYESH QARONY, Ph.D.

Postdoctoral Scholar, Electrical and Computer Engineering (ECE), University of California, Davis, USA

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Executive Summary

Professional Experience

- **Postdoctoral Scholar**, Electrical and Computer Engineering, University of California Davis, CA, USA. (***Jan 2020- Present***)
- **Postdoctoral Fellow,** Applied Physics, The Hong Kong Polytechnic University, Kowloon, Hong Kong. (***Oct 2019- Jan 2020***)
- **Teaching and Graduate Research Assistant**, The Hong Kong Polytechnic University, Kowloon, Hong Kong. (***Sep 2016- Sep 2019)***
- **Senior Lecturer**, Electrical and Electronic Engineering, American International University-Bangladesh, Dhaka, Bangladesh. (***Nov 2015- Aug 2016***)
- **Lecturer**, Electrical and Electronic Engineering, American International University-Bangladesh, Dhaka, Bangladesh. (***Sep 2013- Oct 2015***)
- **Teaching and Graduate Research Assistant**, Electrical Engineering**,** Jacobs University Bremen, Germany. **(*Feb 2012-July 2013*)**

Academic Background

- **Ph.D. :** Applied Physics, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong
- **M.Sc. :** Electrical Engineering, Jacobs University Bremen, Germany
- **M.Sc. :** Telecommunication Engineering, University of Trento, Italy
- **B.Sc. :** Electrical and Electronic Engineering, American International University-Bangladesh, Dhaka, Bangladesh

Most Selected Peer-reviewed Journal Publications

1. **W. Qarony**, M. I. Hossain, J. Vladislav, A. Salleo, D. Knipp*, Y. H. Tsang*, *Influence of Perovskite Interface Morphology on the Photon Management in Perovskite/silicon Tandem Solar Cells*, ACS Applied Materials & Interfaces, 12 (**2020**) 15080-15086. (***ACS, Impact Factor: 8.758)***

2. **W. Qarony**, M. Kozawa, H. Khan, M. I. Hossain, A. Salleo, Y. H. Tsang, H. Fujiwara, D. Knipp*, *Vertically Stacked Perovskite Detectors for Color Sensing and Color Vision***,** Advanced Materials Interfaces, (**2020**) 2000459. (***Wiley Online, Impact Factor: 4.948)***

3. M. I. Hossain, A. M. Saleque, S. Ahmed, I. Saidjafarzoda, M. Shahiduzzaman, **W. Qarony***, D. Knipp, N. Biyikli, Y. H. Tsang*, *Perovskite/Perovskite Tandem Solar Cells: a guideline for reaching energy conversion efficiency beyond 30%*, Nano Energy 79 (**2021**) 105400. [***Corresponding Author, Supervised Graduate Students during my Postdoctoral Fellow**] (***Elsevier, Impact Factor: 16.602)***

4. M. I. Hossain, A. K. M. Hasan, **W. Qarony**, M. Shahiduzzaman, M. A. Islam, Y. Ishikawa, Y. Uraoka, N. Amin, D. Knipp*, M. Akhtaruzzaman*, Y. H. Tsang*, *Electrical and Optical Properties of Nickel-oxide Films for Efficient Perovskite Solar Cells*, Small Methods (**2020**) 2000454. (***Wiley Online, Impact Factor: 12.13)***

5. [#]M. I. Hossain, [#]**W. Qarony**, V. Jovanov, Y.H. Tsang*, D. Knipp*, *Nanophotonic design of perovskite/silicon tandem solar cells*, Journal of Materials Chemistry A, 6 (**2018**) 3625-3633. (***RSC, Impact Factor: 11.301)*** [[#]**Equal Contribution**]

Profile

PhD with "Excellent" rated by committee members at HK PolyU (QS Rank:75)**|** Over 30 SCI peer reviewed journal publications, including leading journals in the field of optics and energy materials- Nano Energy (16.602), Advanced Science (IF: 15.84), Small Methods (12.13), J. Mater. Chem. A (IF: 11.301), Nano-Micro Letters (IF: 12.264), ACS Appl. Mater. Interfaces (IF: 8.758), Applied Energy (IF: 8.848), J. Mater. Chem. C (IF: 7.059), Solar Energy Materials & Solar Cells (IF: 6.984), and Optics Express (IF: 3.669). Attended >20 and top conferences and exhibitions in USA, Japan, and China, including MRS, SPIE, and IEEE **|** Hong Kong PhD Fellowship (HKPFS) Awardee**|** MSc with "Hempel Fellowship" (Germany)**|** Opera Universitaria Scholarship Awardee (Italy)**|** BSc with Full-free Tuition Scholarship**|** "Summa-Cum-Laude" gold medal distinction in BSc**|** University Senior Lecturer**|** Collaboration experience with top-ranked universities, including Stanford University USA, University of Connecticut USA, Jacobs University Bremen Germany, Tokyu Institute of Technology Japan, City University Hong Kong, and NTNU, Gjøvik, Norway.

Social Links

Google Scholar [citations-427, h-index: 12, i-12 index: 16]

ResearchGate [RG score: 28.26, h-index: 11]

LinkedIn

Research Interest

- Optics and photonics
- Photovoltaic materials and solar cells
- Image Sensors and photodetectors
- Perovskite, Tandem solar cells
- Novel 2D materials.

Research Skills

- Numerical Simulations: FDTD, FEM, MATLAB
- Thin-film Deposition: Spin-coating, ALD, CVD, Sputtering, Solution-processed, Thermal evaporation, Glovebox, Clean room, Photolithography,

Academic Background

The Hong Kong Polytechnic University (PolyU), Hong Kong****

*Ph.D. in Applied Physics (*Program: Photonics, Plasmonics and Optoelectronics-Devices and Materials*)*

GPA: 3.75/4.0 (Grade A, Excellent) (Best: 4.00, Worst: 0.00), equivalent to American grade: A, and equivalent to European Credit Transfer System (ECTS): Very Good.

Ph.D. Thesis Title: Optics in Perovskites and Low-mobility Materials Based Solar Cells and Color Vision in Perovskite Sensors

Chief Supervisor: Prof. Yuen Hong Tsang (Peter), HK PolyU, Hong Kong

External Supervisor: Prof. Dietmar Knipp, Stanford University, USA

September 2016 – September 2019

*Conducted the degree with "**Hong Kong PhD Fellowship Scheme (HKPFS)**" covering total about USD 17,000 tuition plus USD 1,30,000 stipend, USD 5,000 conference grant, and USD 7,700 research resources grant. (Awarded total about 250 students internationally and only **1** student in Applied Physics Dept., PolyU during 2016/17 session)*

Jacobs University Bremen (JUB), Germany***

M.Sc. in Electrical Engineering (Program: Communications, Systems and Electronics), (62.5% Research)

CGPA: 1.51/5.0 (Best: 1.00, Worst: 5.00), Equivalent American Grade: A (4.00/4.33) and European Credit Transfer System (ECTS): Very Good (B)

Master's Thesis Title: *Optics in Thin-Film Organic Solar Cells on Smooth and Textured Surfaces*

Supervisor: Prof. Dr. Dietmar Knipp, Jacobs University Bremen, Germany

September 2011 – August 2013

*Conducted the degree with '**Hempel Fellowship**' covering **€40,000** tuition plus **€16,080** stipend. (Awarded **2** students internationally out of Approx. **60** students)*

University of Trento, Italy**

MSc in Telecommunication Engineering (Transferred to Jacobs University Bremen)

Average 25.33/30 after 1st year

August 2010 – August 2011

*Conducted the study with **€10,000** stipend plus **€20,000** tuition fees free.*

EVG, Dry and Wet Etching

- Characterization: SEM, XRD, AFM, UV-vis, Ellipsometry, Solar simulator, Femtosecond laser, Confocal microscope, PL, Raman Spectroscopy, Probe Station.

Language Skills

- Bengali (Native)
- English (Fluent)
- Hindi (Good Command)
- Urdu (Good Command)
- German (Elementary)
- Arabic (reading)

Computer Skills

- Microsoft Word, PowerPoint, Excel
- Origin Pro
- MATLAB
- C & C++
- OpenGL
- LTspice/Pspice
- VHDL
- ADS
- Operating Systems: MacOS, Windows, Linux, Android etc.
- AutoCAD, Xilinx, LATEX/LYX, ALTERA

American International University- Bangladesh (AIUB)*
B.Sc. in Electrical and Electronic Engineering
*CGPA: 3.98/4.00 (Secured a place in the **top 2% amongst 252** students in the faculty of engineering).*
***B.Sc. Dissertation Title**: Harmonics in the Power System*
Supervisors: Prof. Ms. Rafia Akhter & Prof. Dr. Abdur Rahim Mollah, EEE Dept., AIUB
June 2006 – April 2010
*Conducted the degree with tuition fees scholarship. Awarded **Summa-Cum-Laude**/ Highest honor or Distinction (**top 2% - 3%** students are awarded)*

***** QS world university rankings: 75, QS top 50 under 50: 7, QS WUR by subject Rankings: 5, Times Higher Education Asia University Rankings: 19 (2020).*
**** Times Higher Education (THE) World Young University Ranking for universities which are younger than 50 years, the international, English-language campus university ranks 26th out of 351 participating universities from 60 countries. It was graded as one of the five best young universities in Germany*
*** QS world university rankings: 389*
**Secured 4th and 7th position among all universities in Bangladesh according to Entire Education University Ranking (2018/19) (http://www.entireeducation.com/top-10-universities-in-bangladesh/) and International University Web Ranking (2018/19) (http://www.4icu.org/bd/), respectively.*

Professional Experience

University of California, Davis (UC Davis), USA
Postdoctoral Scholar, Electrical and Computer Engineering (ECE)

Duties:
Research on the fabrication of photodetector and photovoltaic using photon trapping mechanism jointly with **Lawrence-Berkeley Lab, UC Berkeley**
Publish high-quality journal papers
Apply for project-related grants
Supervising graduate students

Projects:
Ultrafast Photodiodes:
*Building ultrafast and sensitive silicon and Germanium on Silicon photodetectors (P-I-N devices up to Single Photon Avalanche detectors).
*Demonstration of new Silicon PDs that can reach the 20Gbps, Ge on Silicon PDs with 4x efficiency enhancement at 1330nm and 1550nm and we are pursuing the creation of ultra-thin SPADs with 30ps rise time.

Collaborator List

- Prof. Alberto Salleo, Stanford University, USA
- A/Prof. Necmi Biyikli, University of Connecticut, USA
- Prof. Kin Man YU, City University of Hong Kong, Hong Kong
- Prof. Juan Antonio Zapien, City University of Hong Kong, Hong Kong
- Prof. Veit Wagner, Jacobs University Bremen, Germany
- A/Prof. M. Shahiduzzaman, Kanazawa University, Japan
- Prof. Nowshad Amin, UNITEN & National University of Malaysia, Malaysia
- Prof. M. Akhtaruzzaman, National University of Malaysia, Malaysia
- Prof. Hardeberg, TNU-Norwegian University of Science and Technology, Gjøvik
- Prof. Hiroyuki Fujiwara, Gifu University, Japan
- Prof. Makoto Konagai, Tokyo Institute of Technology, Japan
- Dr. Badriyah Alhalaili, KISR, Kuwait

*Devices are designed for new Optical interconnects in Data Centers, LiDAR and Bioimaging.
*Participation in different product cycle process, from optical and electrical simulation, to fabrication and characterization.

Multispectral Imaging and Color Sensor:

* Building Perovskites-based color sensor and multispectral image sensor overcoming the limit of conventional image sensor commonly used in smartphones and digital cameras

Window Solar Cells:

* Design and fabrication of transparent and semitransparent solar cells for the applications in windows, autonomous vehicles, etc.

January 2020 – Present

The Hong Kong Polytechnic University

Postdoctoral Fellow**,** Department of Applied Physics

Duties:

Research in optics and photonics materials and devices
Publish high-quality journal papers
Apply for project related grants
Supervising graduate students

Projects:

*Basic Science research on 2D perovskites and 2D materials using femtosecond laser, Raman Spectroscopy, Pump-probe laser spectroscopy, etc. (Experiment)
*2D materials-based photodetector (Experiment)
*Perovskite color sensor, multispectral image sensor, and solar cells (FDTD and Silvaco Simulation

October 2019 – January 2020

The Hong Kong Polytechnic University

Teaching and Graduate Research Assistant**,** Department of Applied Physics

Duties:

Teaching UG students
Preparing manuals and notes
Grading exams
Conducting research and publishing papers

September 2016 – September 2019

American International University- Bangladesh (AIUB)

Senior Lecturer, Department of Electrical and Electronic Engineering

Responsibilities:

Research in Solar Cell and Renewable Energy
Publish journal papers
Organizing Departmental Events and Festivals
Developing laboratories and courses
Teaching
Supervising final year students for the guided research project
Developed and approved a course titled “Photonics & Photovoltaics”.

November 2015 – August 2016

American International University- Bangladesh (AIUB)

Lecturer, Department of Electrical and Electronic Engineering

Responsibilities:

Research in Solar Cell and Renewable Energy
Publish journal papers

Organizing Departmental Events and Festivals
Developing laboratories and courses
Teaching
Supervising final year students for the guided research project
September 2013 – October 2015

Jacobs University Bremen (JUB), Germany
Teaching and Graduate Research Assistant, Department of Electrical Engineering
Duties:
Teaching undergrad students for their advanced electronics and photonics courses
Teaching laboratory students
Preparing notes and grading for UG students
Research as part of master semester research projects
Presenting and attending seminars on research projects
February 2012 – July 2013

Awards

Sep 16 – Aug 19

"**Hong Kong PhD Fellowship Scheme (HKPFS)**" (Full tuition+ Stipend 25,800 HKD/month)
The Hong Kong Polytechnic University, Hong Kong
(Awarded by the Hong Kong Govt. RGC for pursuing 3 years of PhD in Photonics, Plasmonics and Optoelectronics-Devices and Materials)

Sep 11 – July 13

"**Hempel Fellowship**" (Full tuition+ Stipend 670 Euro/month)
Jacobs University Bremen, Germany
(Awarded by the most renowned and international "Hanseatiche Waren handelsgellschaft mbH & Co. KG" industry located in Bremen, Germany for the whole master study in Jacobs University Bremen (only 2 students were awarded out of approx. 60 students internationally, based on merit and oral examinations))

Aug 10 – Aug 12

Opera Universitaria Scholarship (Stipend 5000 Euro/ Year)
University of Trento, Italy
(Awarded in international level based on the academic records, performances, and financial condition for the master study)

Apr 10

"Summa-Cum-Laude" Gold Medal Award or Highest Distinction
American International University- Bangladesh
(Awarded for the academic excellence throughout the bachelor program in the 10th convocation ceremony of AIUB (2- 3% students are awarded)

May 06 – Aug 09

Bachelor Entrance Tuition Fees Scholarship
American International University- Bangladesh
(Top 5% students are awarded. To maintain the given scholarship a student has to abide by following policies: No grade below B+, minimum CGPA 3.75/4.00, No dropping of courses or semester, No W, I, F, and UW)

Dec 18

Best Scientific Research Work Presenter at HK PolyU

Aug 20

UC Davis PSA Travel Grant

Peer-reviewed Journal Publications

Journal Publications

Year 2020:

1. **W. Qarony**, M. I. Hossain, J. Vladislav, A. Salleo, D. Knipp*, Y. H. Tsang*, *Influence of Perovskite Interface Morphology on the Photon Management in Perovskite/silicon Tandem Solar Cells*, ACS Applied Materials & Interfaces, 12 (**2020**) 15080-15086.
(***ACS, Impact Factor: 8.758***)

2. **W. Qarony**, M. Kozawa, H. Khan, M. I. Hossain, A. Salleo, Y. H. Tsang, H. Fujiwara, D. Knipp*, *Vertically Stacked Perovskite Detectors for Color Sensing and Color Vision***,** Advanced Materials Interface, (**2020**) 2000459.
(***Wiley Online, Impact Factor: 4.948***)

3. M. I. Hossain, A. M. Saleque, S. Ahmed, I. Saidjafarzoda, M. Shahiduzzaman, **W. Qarony***, D. Knipp, N. Biyikli, Y. H. Tsang*, *Perovskite/Perovskite Tandem Solar Cells: a guideline for reaching energy conversion efficiency beyond 30%*, Nano Energy 79 (**2021**) 105400. [***Corresponding Author, Supervised Graduate Students during Postdoctoral Fellow**]
(***Elsevier, Impact Factor: 16.602***)

4. M. I. Hossain, A. K. M. Hasan, **W. Qarony**, M. Shahiduzzaman, M. A. Islam, Y. Ishikawa, Y. Uraoka, N. Amin, D. Knipp*, M. Akhtaruzzaman*, Y. H. Tsang*, *Electrical and Optical Properties of Nickel-oxide Films for Efficient Perovskite Solar Cells*, Small Methods (**2020**) 2000454.
(***Wiley Online, Impact Factor: 12.13***)

5. M. K. Hossain, P. Guo, **W. Qarony**, Y. H. Tsang, C. Liu, S. W. Tsang, J. C. Ho, K. M. Yu*, *Controllable Optical Emission Wavelength in All-inorganic Halide Perovskite Alloy Microplates Grown by Two-step Chemical Vapor Deposition***,** *Nano Research* (**2020**). https://doi.org/10.1007/s12274-020-2951-1.
(***Springer-Nature, Impact Factor: 8.183***) [**My collaboration project with HK CityU**]

6. **W. Qarony**, M. K. Hossain, M. I. Hossain, S. Ma, L. Zeng, K. M. Yu, D. Knipp, A. Salleo, H. Sun, C. T. Yip, Y. H. Tsang*, *Reversible Photochromic and Photoluminescence Behaviors in Iodide Perovskites*, Advanced Optical Materials, (**2020**). (***under consideration***).
(Wiley***, Impact Factor: 8.286***)

7. M. I. Hossain, H. A. Khan, M. Kozawa, **W. Qarony**, A. Salleo, J. Y. Hardeberg, H. Fujiwara, Y. H. Tsang*, D. Knipp*, *Perovskite Color Detectors: Approaching the Efficiency Limit*, ACS Applied Materials & Interfaces, doi.org/10.1021/acsami.0c12851, (**2020**).
(***ACS, Impact Factor: 8.758***)

8. M. Shahiduzzaman, M. I. Hossain, S. Visal, T. Kaneko, **W. Qarony**, S. Umezu, K. Tomita, S. Iwamori, Y. H. Tsang, M. Akhtaruzzaman, T. Taima, and M. Isomura*, Optimized Multi-layer Front Contact Design for Realizing Efficient Perovskite Solar Cells, Nano-Micro Letters, (**2020**). (**In Press**)
(***Springer, Impact Factor: 12.23***)

9. M. I. Hossain, A. Mohammad, **W. Qarony**, S. Ilhom, D. Shukla, N. Biyikli*, D. Knipp*, Y. H. Tsang*, *Atomic Layer Deposition of Metal Oxides for Efficient Perovskite Single-junction and Perovskite/perovskite Tandem Solar Cells*, RSC Advances, 10 (**2020**) 14856-14866.
(***RSC, Impact Factor: 3.119***)

10. M. I. Hossain, [#]N. Yumnam, [#]**W. Qarony**, A. Salleo, V. Wagner, D. Knipp*, Y. H. Tsang*, *Non-resonant Metal-oxide Metasurfaces for Efficient Perovskite Solar Cells***,** Solar Energy, 198 (**2020**) 570-577. [[#]**Equal Contribution**]
(***Elsevier, Impact Factor: 4.608)***

11. S. Ahmed, J. Qiao, P. K. Cheng, A. M. Saleque, M. I. Hossain[1,2], L.-H. Zeng, **W. Qarony**, Y. H. Tsang*, SnTe-Quantum Dots Saturable Absorber for Ultrafast Photonics, Advanced Optical Materials, (**2020**). (***Under Consideration***) (***Wiley, Impact Factor: 8.286)***

12. M. K. Hossain, P. Guo, **W. Qarony**, Y. H. Tsang, C. Liu, S. W. Tsang, J. C. Ho, K. M. Yu*, *Mechanism of non-catalytic chemical vapor deposition growth of all-inorganic CsPbX3 (X=Br, Cl) nanowires, Submitted in Nature Communications* (reference number: NCOMMS-20-41837). (***Nature, Impact Factor: 11.80)***

13. A.M. Saleque, S. Ma, A. Safayet, M.I. Hossain, **W. Qarony**, Y. H. Tsang*, *Biodegradable Luffa Sponge Derived Solar Steam Generator for Efficient and Cost-effective Water Purification*, ACS Energy Letter (Under Review) (Manuscript ID: nz-2020-02216t) (***ACS, Impact Factor: 19.003)***

14. **W. Qarony**, M. I. Hossain, H. A. Khan, M. Kozawa, A. Salleo, J. Y. Hardeberg, H. Fujiwara, Y. H. Tsang*, D. Knipp*, *Multispectral Image Sensor with Perovskites*, (**Ready to Submit**)

UC Davis

15. **W. Qarony,** A. S.Mayet, S. Ghandiparsi, C. B.-Perez, A. Ahamed, H. H. Mamtaz, E. P. Devine, T. Yamada, A. F. Elrefaie, S.-Y. Wang, M. Saif Islam*, **Silicon Photodetector Exceeded GaAs Absorption Limit**, (Ready to Submit in Science) [***An experimental Breakthrough in Silicon Photodetectors***]

16. C. B.-Perez, **W. Qarony**, S. Ghandiparsi, Ahmed S Mayet, Hilal Cansizoglu, Yang Gao, Ekaterina Ponizovskaya Devine, Toshishige Yamada, Aly F Elrefaie, Shih-Yuan Wang, M. Saif Islam* **Empirical Modeling to Maximize Photon-Trapping in Ultra-fast Photodetectors**, (Submitted in Nature Communications) [***First empirical modeling to design ultrafast and high-efficiency photodetector with comprehensive experimental results***]

17. E.Ponizovskaya Devine, **W. Qarony**, Ahasan Ahamad, Ahmed Mayet, Soroush Ghandiparsi, Cesar Bartolo-Perez, Aly F Elrefaie, Toshishige Yamada, Shih-Yuan Wang, M Saif Islam, **SINGLE MICROHOLE per PIXEL in CMOS IMAGE SENSOR PHOTODIODS USED to ENHANCE OPTICAL EFFICIENCY in NEAR-INFRARED**, **(Ready to submit)**

18. S. Ghandiparsi, A. S. Mayet, C. Bartolo-Perez, **W. Qarony**, Toshishige Yamada, Ekaterina Ponizovskaya Devine, Aly F. Elrefaie, Jerry M. Woodall, Nibir K. Dhar and M. Saif Islam*, **Efficient low-cost silicon solar cells integrated with surface photon-trapping nanostructures for self-standing IoT sensors, (**Ready to submit**)**

19. Cesar Bartolo-Perez, Ahasan Ahamed, Soroush Ghandiparsi, Ahmed S Mayet, **W. Qarony**, Simon Cherry, Shih-Yuan Wang, M. Saif Islam*, **Controlling the photon absorption characteristics in avalanche photodetectors for high resolution TOF-PET Imaging**, SPIE Photonics West (Bios), 6 - 11 March, San Francisco, CA, USA (Submitted).

Year 2019:

20. **W. Qarony**, M. I. Hossain, A. Tamang, V. Jovanov, D. Knipp*, Y.H. Tsang*, *Enhancing the energy efficiency of low mobility solar cells by a 3D solar cell architecture*, Journal of Materials Chemistry C, 7 (**2019**) 10289-10296.
(***RSC, Impact Factor: 7.059****)*

21. **W. Qarony**, M. I. Hossain, A. Salleo, D. Knipp*, Yuen H. Tsang*, *Rough versus planar interfaces: How to maximize the short circuit current of perovskite single and tandem solar cells*, Materials Today Energy, 11 (**2019**) 106-113.
(***Elsevier, Impact Factor: 5.604****)*

22. L. Zeng, Q. Chen, Z. Zhang, H. Yuan, Y Li, **W. Qarony**, S. P. Lau, L. Luo, Y. H. Tsang, *Multilayered $PdSe_2$/Perovskite Hybrid Schottky-junction for Fast, Self-powered, Broadband Photodetectors and Image Sensor Application*, Advanced Science, 2019, 1901134.
(***Wiley Online, Impact Factor: 15.84****)*

23. M. I. Hossain, **W. Qarony**, S. Ma, L. Zeng, D. Knipp*, Y. H. Tsang*, *Perovskite/silicon Tandem Solar Cells: From Detailed Balance Limit Calculations to Photon Management***,** Nano-Micro Letters, 11 (**2019**) 58.
(***Springer, Impact Factor: 12.23****)*

24. M. I. Hossain, [#]A. Hongsingthong, [#]**W. Qarony**, P. Sichanugrist, M. Konagai, A. Salleo, D. Knipp,* Y. H. Tsang*, *Optics of Perovskite Solar Cell Front Contacts***,** ACS Applied Materials & Interfaces, 11, 16 (**2019**) 14693-14701. [**[#]Equal Contribution**]
(***ACS, Impact Factor: 8.758****)*

25. S. Ma, **W. Qarony**, M. I. Hossain, Y. H. Tsang*, *Metal-organic framework derived porous carbon of light trapping structures for efficient solar steam generation*, Solar Energy Materials and Solar Cells, 196 (**2019**) 36-42.
(***Elsevier, Impact Factor: 6.984****)*

26. X. Wang, **W. Qarony**, P. K. Cheng, M. I. Hossain, Y. H. Tsang*, *Photoluminescence of Group-10 Transitional Metal Dichalcogenides (PtS2, PdS2, and PdSe2) Quantum Dots*, RSC Advances, 9 (**2019**) 38077-38084.
(***RSC, Impact Factor: 3.119****)*

27. H. Long, C.Y. Tang, P. K. Cheng, X. Y. Wang, **W. Qarony**, Y. H. Tsang*, Ultrafast laser pulses generation by using 2D layered PtS_2 as a saturable absorber*, *Journal of Lightwave Technology*, 37 (2019)4, 1174-1179.
(***IEEE, Impact Factor: 4.288****)*

28. H. Long, S. Liu, Q. Wen*, H. Yuan, C. Y. Tang, R. Yue, G. Liang, S. Ma, **W. Qarony**, L. H. Zeng, Y. H. Tsang*, *In_2Se_3 Nanosheets with Broadband Saturable Absorption Used For Near-Infrared Femtosecond Laser Mode Locking*, *Nanotechnology*, 2019 Jul 19. doi: 10.1088/1361-6528/ab33d2.
(***IOPSCIENCE, Impact Factor: 3.551****)*

29. X. Wang, H. Long, **W. Qarony**, C. Li, C. Y. Tang, H. Yuan, Y. H. Tsang*, *Fabrication of Luminescent PtS_2 Quantum Dots*, *Journal of Luminescence*, 211, 2019, 227-232. (IF: 3.28, Q1)
(***Elsevier, Impact Factor: 3.28****)*

30. **W. Qarony**, M. K. Hossain, M. I. Hossain, S. Ma, L. Zeng, K. M. Yu, D. Knipp, A. Salleo, H. Sun, C. T. Yip*, Y. H. Tsang*, *Excitation Wavelength Dependent Reversible Photoluminescence Peak in Iodide Perovskites***,** arXiv preprint arXiv:1812.10335(2018) (**2019**). (Arxiv)

Year 2018:

31. [#]M. I. Hossain, [#]**W. Qarony**, V. Jovanov, Y.H. Tsang*, D. Knipp*, *Nanophotonic design of perovskite/silicon tandem solar cells*, Journal of Materials Chemistry A, 6 (**2018**) 3625-3633.
(***RSC, Impact Factor: 11.301)*** [#**Equal Contribution**]

32. **W. Qarony**, M. I. Hossain, R. Dewan, S. Fischer, V B. M.-Rochow, A. Salleo, D. Knipp*, Y. H. Tsang*, *Approaching perfect light incoupling in perovskite and silicon thin film solar cells by moth eye surface textures***,** Advanced Theory & Simulations, 1 (**2018**) 1800030.
(***Wiley Online, Impact Factor: 2.951)***

33. **W. Qarony**, M. I. Hossain, V. Jovanov, D. Knipp*, Y. H. Tsang*, *Maximizing the short circuit current of organic solar cells by partial decoupling of electrical and optical properties*, Applied Nanoscience, 8 (**2018**) 339.
(***Springer, Impact Factor: 2.88)***

34. L. Zeng, Y. Liu, S. Lin, **W. Qarony,** L. Tao, Y. Chai, X. Zhang, S. P. Lau, Y. H. Tsang*, *High photoelectrochemical activity and stability of Au-WS_2/silicon heterojunction photocathode***,** Solar Energy Materials and Solar Cells, Elsevier,Volume 174, January (**2018**), Pages 300-306.
(***Elsevier, Impact Factor: 6.984)***

35. X. Wang, P. K. Cheng, C.Y. Tang, H. Long, H. Yuan, L. Zeng, S. Ma, **W. Qarony,** Y. H. Tsang*, *Laser Q-switching with PtS_2 microflakes saturable absorber, Optics Express* 26 (10), 13055-13060 (**2018**). (IF: 3.669, Q1)
(***OSA, Impact Factor: 3.669)***

Year 2017:

36. [#]M. I. Hossain, [#]**W. Qarony**, M. K. Hossain, M. K. Debnath, M. J. Uddin, Y. H. Tsang*, *Effect of back reflectors on photon absorption in thin-film amorphous silicon solar cells*, Applied Nanoscience, 7 (**2017**) 489–497. [#**Equal Contribution**]
(***Springer, Impact Factor: 2.88)***

37. **W. Qarony**, M. I. Hossain, M. K. Hossain, M. J. Uddin, A. Haque, A. R. Saad, Y. H. Tsang*, *Efficient amorphous silicon solar cells: characterization, optimization, and optical loss analysis*, Results in Physics, 7 (**2017**) 4287-4293.
(***Elsevier, Impact Factor: 4.019)***

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