

# Masaru ONGA – CV

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<b>Date of Birth</b>	9 <sup>th</sup> October 1992	<b>Email 1</b>	onga@mp.t.u-tokyo.ac.jp
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## Personal Profile

I am currently a PhD student in the Department of Applied physics of the University of Tokyo, and engage on the researches of novel 2D semiconductors especially about their optoelectronic properties.

## Education

**Present** PhD student - Department of Applied Physics, The University of Tokyo  
Expected 2020 March, Advisor: Prof. Yoshihiro Iwasa

**2017** MEng - Department of Applied Physics, The University of Tokyo (GPA 3.8/4.0)

**2015** BEng - Department of Applied Physics, The University of Tokyo (GPA 3.5/4.0)

## Experience

**Apr 2017** JSPS Research fellow (DC1)

**- Present** Grant-in-Aid for Research Fellowship for Young Scientist (No.JP17J09152)  
Mentor: Prof. Yoshihiro Iwasa, The University of Tokyo — Tokyo, Japan

**Aug 2015** Furukawa Electric Co., LTD. (as a member of Summer Internship)

**- Sep 2015** R&D of a high-power semiconductor laser for telecommunication  
Telecommunications & Energy Laboratories — Chiba, Japan

## Teaching Assistant, The University of Tokyo

Fall 2017 Laboratory Course of Advanced Optical Science  
Fall 2015 Statistical Thermodynamics, Physical Mathematics  
Fall 2014 Statistical Thermodynamics, Physical Mathematics

## Professional Membership

The Physical Society of Japan, The Japan Society of Applied Physics

## Research Skills

- **Nano-device fabrication and characterization**  
Mechanical exfoliation of layered materials, Fabrication of van der Waals heterostructures, Scanning Electron Microscopy (SEM), Atomic Force Microscopy (AFM), Basic lithography process (photo/E-beam lithography, metal deposition), Fabrication of FET-configuration, especially liquid gating with electrolyte or ionic liquid
- **Low-temperature optical and electrical measurements**  
Low-temperature spectroscopy especially with polarization-resolved microscopic system  
General AC and DC measurements at low temperature  
Combination of optical and electrical measurement (e.g. electroluminescence)
- **Software skills**  
Data analysis and visualization with Igor Pro  
Pattern designs for lithography using AutoCAD  
Design and simple simulation using SOLIDWORKS

## Honors and Awards

1. Young Scientist Presentation Award, the 78th JSAP Autumn Meeting (2017)  
(Top 1% of the 3700+ presenters)
2. Best Poster Award in the 8th Cryogenic Research Center Conference (2017)  
(Top 4% of the 50+ presenters)
3. Distinguished Master Thesis Award (Tanaka Shouji Award) in 2017  
(Top 10% of the 50+ students)
4. Distinguished Presentation Award in the 60th Condensed Matter Physics Summer School (2015)  
(Top 20% in the 30+ students)

## List of Publications (Original papers, refered)

1. **M. Onga**, Y. Zhang, T. Ideue, Y. Iwasa  
Exciton Hall effect in monolayer MoS<sub>2</sub>  
*Nature Materials* **16**, 1193-1197 (2017)
2. **M. Onga**, Y. J. Zhang, R. Suzuki, Y. Iwasa  
High circular polarization in electroluminescence from MoSe<sub>2</sub>  
*Applied Physics Letters* **108**, 073107 (2016)
3. M. Yoshida, T. Iizuka, Y. Saito, **M. Onga**, R. Suzuki, Y. J. Zhang, Y. Iwasa, S. Shimizu  
Gate-Optimized Thermoelectric Power Factor in Ultrathin WSe<sub>2</sub> Single Crystals  
*Nano Letters* **16**, 2061-2065 (2016)
4. Y. Saito, Y. Nakamura, M. S. Bahramy, Y. Kohama, J. T. Ye, Y. Kasahara, Y. Nakagawa, **M. Onga**, M. Tokunaga, T. Nojima, Y. Iwasa  
Superconductivity protected by spin-valley locking in ion-gated MoS<sub>2</sub>  
*Nature Physics* **12**, 144-149 (2016)

## List of Presentations

### Oral Presentation (International, First author only)

1. **M. Onga**, Y. J. Zhang, T. Ideue, Y. Iwasa  
Exciton Hall effect and transport of calley exciton in monolayer MoS<sub>2</sub>  
JSAP-OSA Joint Symposia and The 78th Autumn Meeting of JSAP, Fukuoka, Japan, September 2017
2. **M. Onga**, Y. J. Zhang, T. Ideue, Y. Iwasa  
Observation of the Excitonic Hall Effect in Monolayer MoS<sub>2</sub>  
XXVI International Materials Research Congress, Cancun, Mexico August 2017
3. **M. Onga**, Y. J. Zhang, T. Ideue, Y. Iwasa  
Exciton transport phenomena in monolayer MoS<sub>2</sub>  
The March Meeting 2017 of the American Physical Society, New Orleans, LA, USA, March 2017
4. **M. Onga**, Y. Zhang, R. Suzuki, Y. Iwasa  
High circular polarization in a MoSe<sub>2</sub> light-emitting transistor  
The March Meeting 2016 of the American Physical Society, Maltimore, MD, USA, March 2016

### **Poster Presentation (International, First author only)**

1. **M. Onga**, Y. Zhang, T. Ideue, Y. Iwasa  
Exciton Hall effect in valley-polarized excitons  
CEMS Symposium on Trends in Condensed Matter Physics, Wako, Japan, November 2017
2. **M. Onga**, Y. Zhang, R. Suzuki, Y. Iwasa  
Circularly Polarized Electroluminescence in Transition Metal Dichalcogenides  
XXVI International Materials Research Congress, Cancun, Mexico, August 2017
3. **M. Onga**, Y. Zhang, T. Ideue, Y. Iwasa  
Exciton Hall effect and valley transport in monolayer MoS<sub>2</sub>  
CEMS Topical Meeting on Emergent 2D Materials 2017, Wako, Japan, March 2017
4. **M. Onga**, Y. Zhang, T. Ideue, Y. Iwasa  
Experimental observation of the excitonic Hall effect  
CEMS-QPEC Symposium on Emergent Quantum Materials, Tokyo, Japan, January 2017
5. **M. Onga**, Y. Zhang, R. Suzuki, Y. Iwasa  
High circular polarization in MoSe<sub>2</sub> light-emitting transistors  
CEMS Topical Meeting on Emergent 2D Materials, Wako, Japan, December 2015

### **Oral Presentation (Domestic, in Japanese, First author only)**

1. **M. Onga**, Y. J. Zhang, F. Qin, W. Shi, A. Zak, R. Tenne, Y. Iwasa  
Optoelectronic Properties in WS<sub>2</sub> Nanotubes  
JSPS 2017 Autumn Meeting, Iwate, Japan, September 2017
2. **M. Onga**, Y. J. Zhang, T. Ideue, Y. Iwasa  
Exciton transport in monolayer MoS<sub>2</sub>  
JSPS 2016 Autumn Meeting, Kanazawa, Japan, September 2016
3. **M. Onga**, Y. J. Zhang, R. Suzuki, Y. Iwasa  
Circular-polarized electroluminescence in MoSe<sub>2</sub> ambipolar transistor  
JSPS 2015 Autumn Meeting, Osaka, Japan, September 2015
4. **M. Onga**, Y. J. Zhang, R. Suzuki, Y. Iwasa  
Chiral emitting transistor in transition metal dichalcogenides  
The 60th Condensed Matter Physics Summer School, Gifu, Japan, July 2015

### **Poster Presentation (Domestic, in Japanese, First author only)**

1. **M. Onga**, Y. J. Zhang, T. Ideue, Y. Iwasa  
Excitonic Hall effect in monolayer MoS<sub>2</sub>  
The 8th Cryogenic Research Center Conference, Tokyo, Japan, February 2016
2. **M. Onga**, Y. J. Zhang, R. Suzuki, Y. Iwasa  
Large circular polarization in MoSe<sub>2</sub> light-emitting transistors  
The 60th Condensed Matter Physics Summer School, Gifu, Japan, July 2015

## **References**

### **Yoshihiro Iwasa**

Professor

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