



— ON/OFFLINE **HYBRID** EVENT —

IWUMD 2022

The 5th International Workshop on Ultraviolet Materials and Devices

May 23(Mon.) – 26(Thu.), 2022 | Maison Glad Jeju, Jeju, Korea

Guidelines for
Participants

- **How to Access**
- **Oral Session**
- **e-Poster Session**
- **Q&A**
- **Downloads**
- **Notice**

- You can access the online conference with your registered ID and PW via [Online System](#).
- Once you complete the registration through the payment, additional tabs for the online conference will be added to your menu on the top of the page based on your registered information. If you haven't complete the registration including payment, please proceed your registration first.
- All the presentations will be conducted as live streaming in accordance with the program schedule through Zoom on time.
- You may see the session schedule when you click the session code.
- You may access to the Zoom meeting(s) once you click the Zoom button () beside each session code.

- ‘Online Conference’ blue menu shows our conference program.
- To see the presentation(s) on time, please click the zoom button next to the session code.
- All **Oral Sessions** will be broadcast live in time for each presentations time.

Online Conference

All Program	May 23(Mon.)	May 24(Tue.)	May 25(Wed.)	May 26(Thu.)
May 24 (Tue.)				
Time	Hall A		Hall B	
09:00-12:00 (180')	Tutorial Session			
12:00-13:00 (60')	Lunch			
13:00-14:00 (60')	Opening / [Plenary Session 1] Progress of Deep-UV LEDs by Increasing Light-Extraction Efficiency Prof. Hideki Hirayama(RIKEN & Quantum Optodevice Lab., Japan)			
14:00-14:15 (15')	Coffee Break			
14:15-16:15 (120')	[TuA1] Oral 1 Click Growth and Characterization of BN			
16:15-16:30 (15')	Break			
16:30-18:30 (120')	[TuA2] Oral 2 Click Optical Properties of			
18:30-19:30 (60')	Poster Session			

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May 23 – 26, 2022 | Maison Glad Jeju, Jeju, Korea | Hybrid Conference

[TuA1] Growth and Characterization of BN

Date / Time	May 24 (Tue.), 2022 / 14:15-16:15
Room	Room A
Session Chair	Jong-Hwan Kim (POSTECH, Korea)

[TuA1-1] Invited Talk 14:15-14:45

The Emergence of Hexagonal Boron Nitride Material as an Enabler for Next Generation III-Nitride Devices
 Suresh Sundaram^{1,2,3}, Phuong Vuong², Soufiane Karakchou^{1,2}, Adama Mballo², Ashutosh Srivastava^{1,2}, Gilles Patriarche⁴, Paul L. Voss^{1,2}, Jean Paul Salvestrini^{1,2,3}, Abdallah Ougazzaden^{1,2}
¹Georgia Institute of Technology, USA, ²CNRS, France, ³Georgia Tech Lorraine, France, ⁴University of Paris-Saclay, France

[TuA1-2] Oral 14:45-15:05

The Optical Properties of Polytypes of sp²-Bonded Boron Nitride
 Bernard Gil¹, James H. Edgar², Jiahua Li², Matthieu Moret¹, Adrien Rousseau¹, Pierre Valvin¹, Guillaume Cassabois¹, Wilfried Desrat¹, Sachin Sharma³, Laurent Souqui⁴, Henrik Pedersen⁵, Hans Högberg³
¹CNRS-The University of Montpellier, France, ²Kansas State University, USA, ³Linköping University, Sweden, ⁴University of Illinois Urbana-Champaign, USA

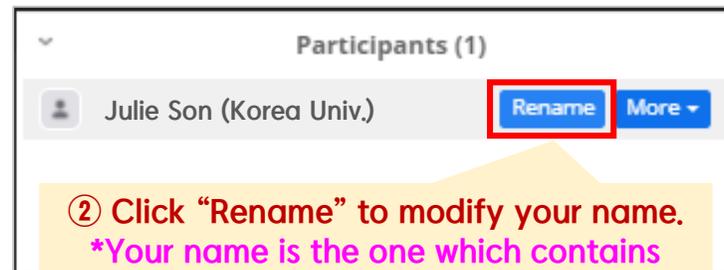
[TuA1-3] Oral 15:05-15:25

Novel 2D Layered Boron Rich B(AI)N Ternary Alloys: Epitaxial Growth and Materials Characterization
 P. Vuong¹, A. Mballo¹, S. Sundaram^{1,2,3}, G. Patriarche⁴, Y. Halfaya⁵, T. Moudakir⁶, S. Gautier⁶, P. L. Voss^{1,2}, J. P. Salvestrini^{1,2,3}, A. Ougazzaden^{1,2}
¹CNRS, France, ²Georgia Institute of Technology, USA, ³Georgia Tech Lorraine, France, ⁴University of Paris-Saclay, France, ⁵Institut Lafayette, France

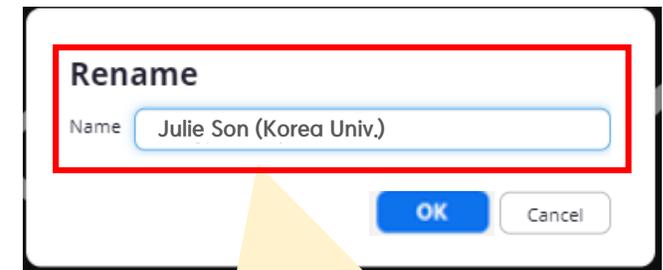
- Please modify your name according to the procedure below;
 - ① Click “Participants” on Zoom Menu
 - ② Fine “More” in your name filed and click “Rename”
 - ③ Re-type your name: Name (Affiliation) **Example** Julie Son (Korea Univ.)
- You may enter questions directly into the Chat or use "Raise Hand" to join Q&A.
- Ask questions to the presenter by following the session chair’s instructions
- * You are able to use audio if the host allows you.
- After your question, click "Lower Hand“, and please mute your microphone.

▶ How to Rename in the Zoom Session

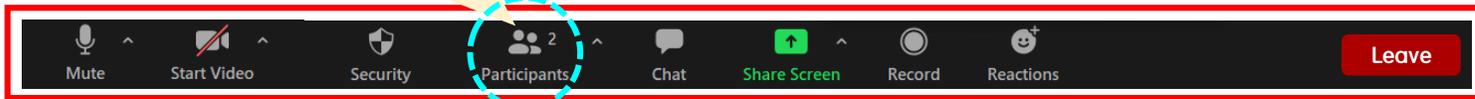
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② Click “Rename” to modify your name.
*Your name is the one which contains
“(me)” at the end



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Name (Affiliation)
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Then, click “OK”.



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- Lower Hand:** A yellow callout pointing to the 'Lower Hand' option in the host menu.
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- Chat Box:** A red dashed box highlights the 'Chat' panel on the right side of the screen.
- Audio / Video Setting:** A yellow callout pointing to the 'Mute' and 'Start Video' buttons in the bottom toolbar.
- To Open Participants List:** A yellow callout pointing to the 'Participants' icon in the bottom toolbar.
- To Open Chat Box:** A yellow callout pointing to the 'Chat' icon in the bottom toolbar.
- Raise Hand for Q&A:** A yellow callout pointing to the 'Raise Hand' button in the bottom toolbar.
- Exit ZOOM:** A yellow callout pointing to the 'Leave' button in the bottom toolbar, with the text: "*Do not click the 'Leave' button unless you intend to leave the session."
- Recording is strictly prohibited:** A red arrow points to the 'Record' button in the bottom toolbar, with the text: "Recording is strictly prohibited."

- Poster sessions and Q&A are always available **on-demand** on the online platform.
- All **Poster presentations** are based on presenting A0 size poster presentation materials on the online platform, and offline poster presentation can be conducted on-site through the entire duration of the session.
- You can see the abstract file by clicking **'View'** button, and the Poster file by clicking **'View'** button.

e-Poster Session

1	AlN Bulk Crystals and Templates	+
2	Growth and Properties of AlGaIn Heterostructures	+
3	BN Growth and Fundamental Properties	+
4	Growth and Properties of Oxides (Ga2O3 etc.) and Diamond	+
5	UV-emitters (Lasers and LEDs) and Detectors	+
6	Nanostructures and Nanodevices	-

Presentation No	Title	Abstract File	Post. File
P-49	Highly Efficient White Organic Light Emitting Devices Fabricated Utilizing a Perovskite Quantum Dot-Based Color Conversion Fiber Seong Su Choi, Dae Hun Kim, Tae Whan Kim Hanyang University, Korea	View	View
P-50	Self-Healable Memristive Devices Based on a Zein Active Layer Inserted with Graphene Quantum Dots Yoon Chul Hwang, Jun Seop An, Youngjin Kim, Tae Whan Kim Hanyang University, Korea	View	View
P-51	Ultra-Long n-GaN Microwire Structures for UV Photodetector Jeong-Kyun Oh, Yong-Ho Ra, Dae-Young Um, Bagavath Chandran, Sung-Un Kim, Ji-Yeon Kim, Cheul-Ro Lee Jeonbuk National University, Korea	View	View

Click

Ultra-long n-GaN Microwire Structures For UV Photodetector

Jeong-Kyun Oh, Yong-Ho Ra, Dae-Young Um, Bagavath Chandran, Sung-Un Kim, Ji-Yeon Kim, Cheul-Ro Lee.*

School of Advanced Materials Engineering, Jeonbuk National University, Jeonju 54896, Korea

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With the rapid development of low dimensional semiconductor materials in recent years, nano/micro photodetectors (PDs) have attracted a great deal of attention due to their widespread use in image sensing, convert communication, environmental, ozone tracking, and ultraviolet (UV) astronomy. The n-GaN microwire (MW) can be an excellent candidate for making PDs



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Semiconductor Materials & Process Laboratory (SMPL), School of Advanced Materials Engineering, Engineering College, Research Center for Advanced Materials Development (RCAMD), Jeonbuk National University, Jeonju 54896, Republic of Korea
E-mail: crlee7@jbnu.ac.kr



Abstract

The rapid development of low dimensional semiconductor materials in recent years, nano/micro photodetectors (PDs) have attracted a great deal of attention due to their widespread use in image sensing, communication, environmental, ozone tracking, and ultraviolet (UV) astronomy. The n-GaN microwire can be an excellent candidate for making PDs capability to long lifetime, high stability against radiation (radiochemical (EC) etching. Gallium nitride (GaN) are direct bandgap materials of optical bandgap 3.4 eV. We have grown the ultra-long n-GaN MW for UV PDs. The Ultra-long n-GaN MW was fully grown on Si (111) substrate using the MOCVD system. The surface morphology, crystal quality, and electronic properties of ultra-long n-GaN MW structures were studied by Field-emission scanning microscopy (FE-SEM), X-ray diffraction (XRD), Transmission electron microscopy (TEM), Luminescence (CL), Photoluminescence (PL) measurements and photocurrent was demonstrated. FE-SEM shows the MW structures with the ultra-long length (~13 μm) and XRD analysis means the high crystal quality with strain relaxation and termination from long-structures. The optical properties of n-GaN MW have been investigated using room temperature of PL and CL studies. These results also mean the large diameter, the high aspect ratio of the MW structure can increase the active area of the large diameter. TEM analysis reveals the crystal quality of the structures. Photocurrent with excellent electrical properties of the ultra-long n-GaN MW structures compared to conventional NWs. Therefore, it is expected that high-performance UV PDs can be fabricated using the ultra-long n-GaN MWs have grown.

Process conditions

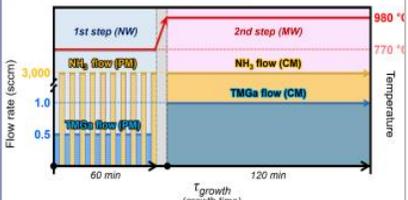


Figure 1. Experimental process of ultra-long n-GaN microwires

Result & discussion

- For **Poster Session**, Q&A can be conducted using the Q&A board. If you leave the question, an email will be sent automatically to the presenter of the abstract you asked. And if there is a reply, a notification email will be sent to the questioner.
- You may find out papers by topics.

Q&A

You can search for a presentation title to ask a question using either the presentation number or the title keyword.

1. AIN Bulk Crystals and Templates +
2. Growth and Properties of AlGa_N Heterostructures -

All Invited Talk Oral Poster

Invited [ThA3-1] Strategies of AlGa_N Heterostructure Design and Growth for UVC Optoelectronic and Electronic Device Applications
Uiho Choi¹, Minho Kim¹, Byeongchan So², Okhyun Nam¹

Abstract Q&A

Question

Click

Invited [ThA3-1] Strategies of AlGa_N Heterostructure Design and Growth for UVC Optoelectronic and Electronic Device Applications
Uiho Choi¹, Minho Kim¹, Byeongchan So², Okhyun Nam¹

Abstract Q&A

Question

Cancel Submit

Invited [ThA3-1] Strategies of AlGa_N Heterostructure Design and Growth for UVC Optoelectronic and Electronic Device Applications
Uiho Choi¹, Minho Kim¹, Byeongchan So², Okhyun Nam¹

Abstract Q&A

Question

Answer Edit Delete

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 - ② e-Proceedings
 - ③ Online Platform Guideline

Online Conference

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