

## 3<sup>rd</sup> Intensive Discussions on Growth of Nitride Semiconductors

The international workshop “3<sup>rd</sup> Intensive Discussion on Growth of Nitride Semiconductors” was held at Auditorium of Institute for Materials Research in Katahira campus, Tohoku University on January 16-18, 2017. About 50 specialists in the field of nitride semiconductors participated in this workshop including foreign researchers. The leading researchers in the fields of electronic devices, the crystal growth, and the characterization for devices presented each current status, and discussed on technical issues each other.

The international workshop “3<sup>rd</sup> Intensive Discussion on Growth of Nitride Semiconductors (IDGN-3)” was held on January 16-18, 2017.

Starting from the vapor-phase growth of GaN by H. P. Marcus and J. J. Tietjen in 1969, the research on nitride semiconductors has progressed with a focus on GaN. Nitride LEDs and LDs have been widely used as solid state lighting for energy saving and high-density recording such as Blu-ray, since blue LEDs became commercially available in 1996. Nitride transistors with high-frequency and high-power will come to realization in near future. Recently, nitride solar cells have been studied for covering over the whole range of solar spectrum. Thus, the device application has progressed in a variety of fields [1]; however, the crystalline quality is still poor in comparison with conventional III-V semiconductors such as GaAs and InP. For the future development in high efficiency, long device-lifetime, and the expansion of application, it is indispensable to improve the crystalline quality and to control the crystal characteristics.

The previous workshops (IDGN-1 and 2) held in 2012 and 2014 provided us the opportunity to share the most recent achievements and to discuss the technical issues on the crystal growth and device applications of nitrides. The purpose of the present workshop was to analyze the status quo, and to find the direction to take in the future and the problems that need to be solved in the field of high power and high breakdown voltage transistors, high frequency transistors, the epitaxial growth and the process technology for transistors. To achieve these, the number of participants was limited to 50 persons including researchers from abroad, and the straightforward discussion was greatly

encouraged among the selected professionals. Participants had common understandings in the current technologies and found out the way to solve problems in the crystal growth. In the workshop, some selected topics were presented at the beginning of each session, and the participants voluntarily presented their data, which were followed by deep-and-intensive discussion. This style is not common but brought us the significant outcome.

The workshop chairs found a great deal of satisfaction in all the topics, and would like to say thank all the panelists and participants who boosted the fruitful discussion.

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### References

- [1] Selected Topics in Applied Physics “Progress of Nitride Semiconductors and their Future Prospects”, ed. T. Matsuoka *et al.*, Jpn. J. Appl. Phys., vol. 53, No. 10, Oct. 2014.



Fig. 1 Participants selected professionals.