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## Preface: The 8th National Physics Seminar 2019 FREE



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## Preface: The 8<sup>th</sup> National Physics Seminar 2019

The 8<sup>th</sup> National Physics Seminar 2019 was held at the Latief Hall, Universitas Negeri Jakarta, Indonesia on 29 June 2019. This seminar was organized by the Study Program of Physics and Physics Education, Faculty of Mathematics and Science, Universitas Negeri Jakarta. The theme of the seminar is “The Role of Physics and Physics Education in Technology Innovation for Nation Competencies in the Industry 4.0”. Today we are in the era of Industry 4.0, characterized by the increase of connectivity, interaction and boundaries among humans, machines and other resources which becomes convergent through information and communication technology known as the disruptive innovation phenomenon. The phenomenon fundamentally changes the way of life, the way of work and the way of collaboration both domestically and globally. The younger generation, especially students must be at the forefront in the area of Industry 4.0. To build the innovation capabilities, the role of universities and research institutions becomes a major support of the formation of innovation ecosystems that produce qualified researches which bring benefit to the nation competencies. A collaboration of all stakeholders is required, starting from the government, the private sector, academics, and the wider community to improve the mastery of technology.

All articles in this issue have been subjected to a peer-review process based on their originality and quality. The aim of the Seminar is to be a platform for researchers to present their latest research works and to exchange their ideas. The topics covered in this book have covered following aspects;

- Physics Education
- Material Physics
- Instrumentation and Computational Physics
- Medical Physics & Biophysics
- Earth and Space Physics
- Theory, Nuclear, and Particle Physics
- Energy and Environmental Physics

In National Physics Seminar 2019, there are twelfth parallel sessions and three keynote speakers. It is an honor to present this volume of AIP Conference Proceedings and we deeply thank the authors for their enthusiastic and high-grade contribution. From the review results, there are 56 selected papers which will be published in AIP Conference Proceedings from 264 submitted papers.

Finally, the organizing committee would like to express appreciation to all supporters, sponsors, participants and Physical Society of Indonesia (PSI) Chapter Jakarta and Banten for great contribution to the seminar success.