

The 5th International Seminar on Science Education (ISSE)

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PREFACE

The Fifth International Seminar on Science Education (ISSE 2019) carried theme about Industrial Revolution 4.0: Impacts, Challenges, and Strategies in Science Education to provide a platform for researchers, academics, students, education practitioners, and other stakeholders to share problems and their solutions on major science and science education trends. This seminar also aims to keep abreast of the current development and innovation in the area of science education. The Fifth International Seminar on Science Education (ISSE 2019) is the major opportunity each year to discuss the interaction among education sciences within Chemistry, Physics, Biology, Science.

This proceedings is the regular edition of the conference proceedings of the 5th International Seminar on Science Education held by the Graduate School of Chemistry, Physics, Biology, and Science Education Yogyakarta State University, Indonesia on 26 October 2019 Graduate School of Yogyakarta State University. The scope of our seminar that will be discussed is topic areas within Chemistry, Physics, Biology, and Science education. There are 108 papers that have been carefully peer reviewed. All papers in this proceeding were obtained from a selection process by a team of reviewers and had already been presented in the conference. This seminar is presented presented five invited speakers, which were Prof. Vaile Dawson (The University of Western Australia, Australia), Prof. Ozgul Yilmaz Tuzun (Middle East Technical University, Turkey), Prof. Hsin-Kai Wu (National Taiwan Normal University, Taiwan), Assoc. Prof. Dr. Mohd. Ali Samsudin (Universiti Sains Malaysia, Malaysia). The parallel session came from Indonesia researcher an aboard that present after the invited speakers present their articles.

The success of the ISSE 2019 conference series, because of the support of many people i.e. Steering Committee, Program Committee, Organizing Committee, authors, presenters, participants, keynote speakers, student committee, and people in other various roles. We would like to thank them all.

Finally, we would also like to thank IOP Publishing Company for their support in publishing the ISSE-2019 conference proceedings and this proceeding hopefully may contribute to all research education.

Yogyakarta, November 2019

On behalf of the Organizing Committee of the 5th ISSE

Prof. Dr. Hari Sutrisno, M.Si.

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