

# **International Conference on Science and Applied Science 2017 (ICSAS 2017)**

**Lorin Solo Hotel  
Surakarta, Indonesia  
29 July 2017**

## **Preface**

International Conference on Science and Applied Science 2017 (ICSAS 2017) was held at the Lorin Solo Hotel, Surakarta, Indonesia on 29 July 2017. The ICSAS 2017 conference is aimed to bring together scholars, leading researchers and experts from diverse backgrounds and applications areas in Science. Special emphasis is placed on promoting interaction between the science theoretical, experimental, and education sciences, engineering so that a high level exchange in new and emerging areas within Mathematics, Chemistry, Physics and Biology, all areas of sciences and applied mathematics and sciences is achieved.

In ICSAS 2017, there are eight parallel sessions and four keynote speakers. All the paper that has been accepted for presentation in ICSAS 2017 are published online in *Journal of Physics: Conference Series* by IOP Publishing or in conference proceedings. The papers that do not qualify unacceptable in IOP publishing are published in conference proceedings *International Journal of Science and Applied Science: Conference Series* by Sebelas Maret University.

It is an honour to present this volume of *International Journal of Science and Applied Science: Conference Series* and we deeply thank the authors for their enthusiastic and high-grade contribution. We would like to express our sincere gratitude to all in the Programming Committee who have reviewed the papers and developed a very interesting Conference Program, as well as thanking the invited and plenary speakers. Finally, we would like to thank the conference chairman, the members of the steering committee, the organizing committee, the organizing secretariat and the financial support from the Sebelas Maret University that allowed ICSAS 2017 to be a success.

The Editor of the ICSAS 2017 Proceedings:

Prof. Dra. Suparmi, M.A., Ph.D.  
Dr. Fuad Anwar, S.Si., M.Si.