

OPINION

by Assoc. Prof. Delyan Georgiev Genkov, PhD from Technical University –
Gabrovo

for dissertation
of Marieta Metodieva Haka
on the subject:

“Approaches to increasing the security of IoT networks”

for the awarding of the educational and scientific degree "doctor"
doctoral program „Computer systems, complexes and networks“
in Research area 5.3. Communication and computer technology

1. Problem actuality

Internet of Things (IoT) is a modern concept for monitoring and controlling devices, processes, parameters or objects via a computer network/Internet. It is increasingly widespread in both everyday and industrial applications and in service delivery.

Information security is always a priority in the modern world, where we witness various cyberattacks every day. Increasing the security of any system should be a priority. However, traditional IoT systems are designed for convenience and ease of use, without prioritizing security.

The problem is specially relevant and provides various prospects for scientific research.

2. Contributions of the dissertation

The abstract formulates a total of five contributions, two of which are classified as scientific, one as applied science and two as applied. I accept the contributions, but I recommend that the second one be refined. The proposed adaptive approach to improving the level of security in ZigBee networks, according to the abstract, in practice represents a check of the proposal by the counterpart device for the length of the encryption key and agreement with the proposal.

3. Publications.

Five publications are presented with the dissertation, four of which are indexed in the global database Scopus. One of the publications is an article in a journal, the rest are reports from international conferences. All publications are in English. One of the publications is independent, in the others the candidate is listed first in the list of authors, which gives grounds to establish the author's significant contribution to scientific works. No information is presented on established citations of the works, but this is not a requirement for obtaining the educational and scientific degree "Doctor" and it should be borne in mind that all publications are from the last two years. Publication activity is

sufficient and all publications are directly related to the topic and content of the dissertation.

4. Usability of the results in practice

I believe that the results obtained can be used in practical developments to increase security in various types of computer networks.

5. Critical notes and recommendations

I have no significant comments or recommendations regarding the presented abstract of the dissertation.

6. Conclusion

I believe that the dissertation submitted for review meets the requirements and I give it an overall positive rating.

I propose that doctoral student **Marieta Metodieva Haka** be awarded the educational and scientific degree "Doctor" in the scientific specialty 5.3. Communication and Computer Engineering, doctoral program Computer Systems, Complexes and Networks.

09.01.2026 г.

Reviewer:

/assoc. prof. D. Genkov,
PhD/