



Editorial

Cyberphotonics

Cyberphotonics is the branch of photonics dealing with basic research, design, and manufacture of devices for sensorics, information transmission, computing, decision-making and control, which comprise an implementation base for solving cybernetics problems [Cyberphotonics. Ed. by academician V.A. Soifer. Samara: "Novaya Tekhnika"; 2025. ISBN 978-5-88940-167-4].

The reader may wonder: What's the point of introducing a new term once both in domestic and international publications there has been a deeply rooted term 'Optical Information Processing'? Strictly speaking, the deeply rooted term is the scientific slang because an optical system processes optical signals rather than information. Terms are not disputed as long as they adequately reflect the essence of the point in question. Now, coming to the point: signal processing does not imply operations such as obtaining information on the physical world with the aid of sensors; information transmission and pattern recognition; decision-making and, ultimately, control of or impact on a physical object. These operations comprise the subject of cybernetics and justify a need for introducing the new term, 'cyberphotonics'. The author hopes that the term 'cyberphotonics' will catch on, finding its place among other photonics offspring, such as biophotonics, nanophotonics, radiophotonics, neurophotonics, and the like.

In many respects, the introduction of the new term of 'cyberphotonics' has been prompted by the emergence and rapid growth of cyber-physical systems.

Cyberphotonics comprises:

- photonic sensorics;
- photonic computing;
- photonic neural networks;
- photonic telecommunications;
- photonic actuators.

It is the Editor's hope that all these areas of cyberphotonics will be reflected in the research papers published in the Journal of Computer Optics.

Meanwhile, the Journal will definitely preserve its primary area – 'optics in computers and computers in optics' – which was founded 40 years ago and will remain its distinctive feature among journals covering similar topics.

Viktor A. Soifer
Editor-in-Chief

