Let There Be Light—and Money

Prof. Zbigniew R. Grabowski of the Polish Academy of Sciences’ Institute of Physical Chemistry talks to the Voice’s Henryk Janicki.

What is photochemistry?

Life on Earth is possible thanks to the operation of light, the source of energy for all living things. As early as the beginning of the 19th century, in the early days of Chemical Physics, the theories of light suggested the existence of basic questions involving the behavior of light and other chemical reactions. At that time, the decomposition of light was proposed as the primary source of chemical reactions. The idea of using light to cause chemical reactions in the cell, which is now referred to as the quantum theory of photochemistry, was the incentive for exploring the cell. This led to the development of new chemical processes, such as photosynthesis.

What is photochemistry now?

Research is determined by money. We receive it for photochemical applications in medicine, like the treatment of skin and internal elements by irradiation. Photochemistry in the atmosphere also plays an important role, and there is a future for photochemical sewage treatment. These are large-scale processes. In electronics, photochemical methods are used for spreading or removing thin layers in semiconductor elements. There are also interesting attempts to go further and replace the solid state electronic elements with molecules. This would make it possible to create electrical devices on a molecular scale, miniaturized to the size of molecules.