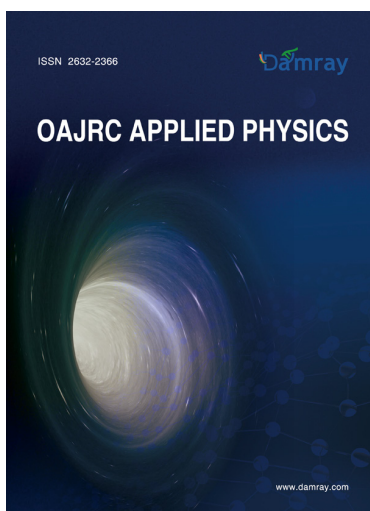


# Development status and application of optoelectronic technology



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## Abstract

At present, with the rapid development of the economy and the continuous improvement of the level of science and technology, optoelectronic technology has made great progress, and the scope of application is not limited to a certain industry, such as medicine, weapons and economics and other fields. In recent years, countries all over the world have achieved a certain degree of development in optoelectronic technology. From the perspective of national politics, optoelectronic technology has become one of the standards to measure the comprehensive strength of the country. From an economic point of view, the application of optoelectronic technology in the economy makes economic development find another way. In recent years, in order to seek sustained and stable economic development, my country has made some achievements in the development of optoelectronic technology.

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## OPEN ACCESS

DOI: 10.26855/oajrcap.2019.12.001

Received: October 16, 2019

Accepted: November 15, 2019

Published: December 12, 2019

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## Keywords

Optoelectronic technology, development, application

## Introduction

The 21st century is an era of information technology based on the premise of the Internet. As an emerging technology in this century, optoelectronic technology has a relatively short history of development. , has received extensive attention from all walks of life, so it can achieve such vigorous development in a very short period of time. Compared with other technologies, optoelectronic technology is like a newborn baby, but it absorbs more nutrients and is taken care of in many ways, so it grows very fast. The current status and application development of optoelectronic technology will be described in detail below. Elaborate[1].

## **1. Current status of optoelectronic technology development**

In the early stage of technological development, optoelectronic technology was mostly used in high-end fields such as national defense and aerospace technology. The technical threshold was high and it was difficult to promote. It was rarely understood by the public, and the awareness was low. In recent years, with the research, application and promotion of optoelectronic technology in western developed countries such as the United States, Japan, the United Kingdom, and Germany, the potential of the optoelectronic industry has been fully tapped. Many emerging countries have seen the bright future of optoelectronic technology and have begun to participate in it. In the development of the optoelectronic industry, various related technologies have developed rapidly, which has enabled the rapid expansion of the optoelectronic market, and has begun to penetrate into the fields of communication, medical treatment, weapons, lighting equipment, etc., and has achieved good development. Driven by various strong performances such as energy consumption, high efficiency, and light weight, the optoelectronic technology industry will become more and more mature, and there will be more and more fields of application. As an emerging sunrise industry, it will effectively promote innovation and development in various fields[2].

At present, optoelectronic technology is a collection of modern multiple developed technologies, including high-tech aspects such as optics, mechanics, and electronic information. It can be seen that optoelectronic technology is a highly comprehensive high-tech, and Now many countries attach great importance to optoelectronic technology. At present, my country has applied relatively developed optoelectronic technology to military, medical and economic fields. The expansion and use of optoelectronic technology in other fields is still being studied, striving to make optoelectronic technology drive The comprehensive development of my country's science and technology[3].

## **2. Application of optoelectronic technology**

### **2.1 Application of photoelectric technology in medical field**

Although optoelectronic technology has wide applicability in a wide range of fields, due to its high cost and high threshold requirements, there are not many talents who understand optoelectronic technology. Medicine is one of the most important academic fields in the world. If there are no doctors and hospitals, many people in the world will die tragically due to suffering from illness or accidents. As a kind of academic knowledge that medical personnel must contact, medicine has a detached status. Therefore, optoelectronic technology can be applied in the medical field and achieve good results, which is of great significance to the development of medicine. Although optoelectronic technology has made some achievements in the medical field, it is only applied to biomedicine, diagnosis, preventive health care and so on. For example, the traditional pulse measurement mainly relies on pulse cutting or stethoscope in traditional Chinese medicine, but after photoelectric technology is applied to the medical field, relevant medical researchers have conducted continuous experiments on pulse measurement, and finally developed a new type of photoelectric pulse sensor[4]; A new type of pulse sensor can overcome the deficiencies encountered in the traditional pulse-checking process in the past, so that it is no longer limited to pulse-checking or stethoscope, but uses light to measure, and the measurement effect is better.

### **2.2 Application of photoelectric technology in the economic field**

The economy is the lifeblood of a country's development. Economic development can lead to a steady increase in social development and a gradual improvement in people's living standards. The economy takes the lead in multiple fields. It can be said that the birth of optoelectronic technology is basically inseparable from the economy. If there is no rapid economic development, there will be no future for optoelectronic technology. Moreover, the economic field is extremely wide, and the optoelectronic field is also in the early stage of development. applied to the economic field. For example, the code scanning payment we often use uses photoelectric technology, as well as photoelectric imaging technology and the application of various precision instruments[5]. In short, optoelectronic technology has made a great contribution to the improvement of the economy, and in recent years, the total production profit of optoelectronic technology has reached 100 billion yuan. According to the above, the development of optoelectronic technology in the economic field cannot be ignored.

### **2.3 Application of photoelectric technology in weapons and equipment**

Photoelectric technology is widely used in modern weapon equipment and weapon systems, such as optical photography, optical measurement, optical aiming, TV ranging, TV tracking, infrared night vision, thermal imaging, laser irradiation, laser ranging, laser interference, etc. From optical reconnaissance satellites, infrared reconnaissance tracking

jamming pods of fighter planes, photoelectric jamming bombs on warships, TV trackers on tanks, laser rangefinders, optical sights on individual weapons, and infrared night vision devices, it can be said that photoelectric Technology has penetrated and applied to all fields of sea, land, air, space and electrical warfare, and plays an irreplaceable and important role in modern warfare[6]. The application of infrared night vision and thermal imaging technology makes the night battlefield no longer a natural obstacle to combat, and makes the party that obtains this technology and equipment form a one-way transparency of the battlefield to the other party, which determines the success or failure of the battle.

## **2.4 Photoelectric Technology in Photovoltaic Industry**

The photovoltaic industry is the most widely used photoelectric technology. A large span from east to west and north to south, and uniform sunlight throughout the year. It is very suitable for the development of photovoltaic industry. Photovoltaic industry is mainly solar power. Compared with hydropower, wind power and nuclear power generation, power generation does not have any pollution and other harmful substances, and with the development of photovoltaic industry for a long time, photovoltaic power generation technology has matured and its safety is guaranteed. The rapid rise of the photovoltaic industry is inseparable from the strong support of government policies[7]. Once this new energy came out, it began to emerge on the stage of new energy, and played a leading role in environmental protection and sustainable economic development.

## **3. The development strategy of optoelectronic technology**

### **3.1 Cultivate professional and technical personnel**

The optoelectronic industry is an emerging sunrise industry, and technology requires continuous innovation and development. These rely on a large number of high-quality professional and technical personnel, which is what we currently lack. Judging from the current situation in our country, colleges and universities are not very active in developing optoelectronic science and technology majors, the number of students majoring in optoelectronics is limited, and the optoelectronic industry has a large demand gap for professionals[8]. Therefore, it is necessary to mobilize university's enthusiasm and establish a complete talent training system. In addition, we must pay attention to practical application in personnel training to ensure that the trained personnel not only have high professional quality, but also have strong innovation ability and technical level.

(1) Analysis of talents in colleges and universities: At present, when recruiting a large number of talents, enterprises in all aspects will focus on colleges and universities, especially photoelectric technology companies. Generally, colleges and universities have a large number of talents with high quality, rich theoretical knowledge and strong learning ability, very much in line with the requirements of the enterprise. However, his hands-on practical ability is weak[9], and his understanding of theoretical knowledge is not deep enough. Although he has learned a lot of professional knowledge about optoelectronic technology, most of them cannot be applied to practice.

(2) Analysis of talents in ordinary technical schools: During the period when photoelectric technology companies are recruiting a lot, they will also recruit in some ordinary technical schools while recruiting in colleges and universities. I don't have much professional theoretical knowledge, but its practical operation ability is better than that of college talents.

(3) The development and training direction of optoelectronic technology talents: According to the above content, talents are indispensable if my country's optoelectronic technology companies want to achieve good development, but in the recruitment and training of optoelectronic technology talents, it is necessary to take into account the optoelectronic technology. Only the combination of theoretical knowledge and practical operation ability of technology can play a better role in the development of optoelectronic technology. It can be said that the combination of theory and practical ability can make the optoelectronic industry embark on a sustainable and stable development path.

### **3.2 Take a long-term view and grasp the direction of the optoelectronic technology industry**

The development of optoelectronic technology is an important path for sustainable development. Efforts should be made to develop the optoelectronic technology industry, continuously train professionals, and establish a specialized optoelectronic technology talent training system, so that optoelectronic technology companies will not develop due to lack of talents while developing rapidly. resulting in stagnation of development. In the process of development, optoelectronic technology enterprises should not have limited vision, but should take a long-term view, seize the fleeting opportunities, and soar into the sky.

### **3.3 Constantly standardize the development of enterprises and improve the industrial system**

Because optoelectronic technology industry started late, and if the technology is slightly behind, it will be left behind. Therefore, it is necessary to constantly standardize enterprise management. In terms of personnel management, an assessment system must be established for staff in daily work, and regular assessment, Make it learn professional knowledge continuously; In terms of production, it is necessary to conduct quality inspections on the raw materials and products produced, so as to lay the foundation for the production of high-quality optoelectronic technology products[10].

#### 4. Conclusion

The development and application of optoelectronic technology has greatly promoted the pace of innovation in many fields, forming a huge industrial cluster in related fields, and playing an important role in national development and social progress. We must seize this rare historical development opportunity, rationalize the layout, reform and innovate, realize corner overtaking in technology and high-end industries, and lead the development trend of the times.

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