

## 河北大学 2010 年博士研究生入学考试试题

(套别: B)

| 学科、专业 | 研究方向               | 考试科目 | 考试时间 |
|-------|--------------------|------|------|
| 光学工程  | 01, 02, 03, 04, 05 | 专业英语 |      |

**I. Translate the following passage into Chinese.**

The first phenomenon of interference, the colours exhibited by thin films now known as 'Newton's rings', was discovered independently by Robert Boyle and Robert Hooke. Hooke also observed the presence of light in the geometrical shadow, the 'diffraction' of light but this phenomenon had been noted previously by Francesco Maria Grimaldi. Hooke was the first to advocate the view that light consists of rapid vibrations propagated instantaneously, or with a very great speed, over any distance, and believed that in a homogeneous medium every vibration will generate a sphere which will grow steadily. By means of these ideas Hooke attempted an explanation of the phenomenon of refraction, and an interpretation of colours. But the basic quality of colour was revealed only when Isaac Newton discovered in 1666 that white light could be split up into component colours by means of a prism, and found that each pure colour is characterized by a specific refractive index. The difficulties which the wave theory encountered in connection with the rectilinear propagation of light and of polarization seemed to Newton so decisive that he devoted himself to the development of an emission theory, according to which light is propagated from a luminous body in the form of minute particles.

**II. Translate the following passage into English.**

P. Leurgans 和 A. F. Turner 首先报道了一种特殊形式的干涉滤波器, 即所谓的受抑全反射滤波器。此种滤波器中, 反射薄膜各由一个夹在高折射率媒介之间的低折射率薄膜构成, 我们在前面曾将看到, 如果这种低折射率层足够薄, 则当入射角度大于临界角时, 入射光不发生全反射, 仍有一部分透过薄层。这样该结构即成为一个无吸收反射器, 而通过调节层的厚度可得到所需要的任何反射率。