河北大学 2011 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.（10）

The branch of optics which is characterized by the neglect of the wavelength, i.e. that corresponding to the limiting case $\lambda_0 \rightarrow 0$, is known as geometrical optics, since in this approximation the optical laws may be formulated in the language of geometry. The energy may then be regarded as being transported along certain curves (light rays). A physical model of pencil of rays may be obtained by allowing the light from a source of negligible extension to pass through a very small opening in an opaque screen. The light which reaches the space behind the screen will fill a region the boundary of which (the edge of the pencil) will, at first sight, appear to be sharp. A more carefully examination will reveal, however, that the light intensity near the boundary varies rapidly but continuously from darkness in the shadow to lightness in the illuminated region, and that the variation is not monotonic but is of an oscillatory character, manifested by the appearance of bright and dark bands, called diffraction fringes. The region in which this rapid variation takes place is only of the order of magnitude of the wavelength. Hence, as long as this magnitude is neglected in comparison with the dimensions of the opening down to the dimensions of the wavelength phenomena appear which need more refined study.

II. Translate the following passage into English.（10）

上面讨论了薄膜的透射光，但多光束的干涉图样也可用反射光观察。当反射面没有吸收时，反射干涉图样和透射干涉图样是互补的，就是说，二者的强度之和在各点都等于入射强度。实际的反射敷层总要有吸收，J. Holden 曾经考虑了它的影响。他指出，当采用反射高而吸收低的银敷层时，反射光的干涉图样由暗条纹构成，形成在一个近乎均匀的亮背景上，并且比透射光的相应亮条纹窄；但是反射图样的极小强度与膜前表面敷层的吸收有很大关系，如果这一吸收太高，条纹就很难被看到了。