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Zemax 軟體模擬攝影鏡頭的設計

The Revolution and Design of Photographic Lens with Zemax

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Abstract

Before the breakthrough of photography, pictures were rare and exclusive. All portrait or landscape picture was created by the oblique way, the ingenious hands. But with the invention of lens, a little piece of glass that would change the world. The lens started a formidable revolution in our ability to explore our surroundings, increase our knowledge, and gradually made it possible to alter our circumstances in a positive way. Since the invention of lens, it has been undergone many revolutions that was in ordered to satisfy the needs and requirements on its own time.

Each of new type of lens was invented to solve the drawbacks of the previous lens, then improve the quality and performance. So, in chapter two, we are going to redesign some of these important lenses by Zemax, analyze their properties, estimate their quality to have a clearer understanding in the development progress of lens. Consequently, a series of lens has been designed and shown up already.

In the next chapter, the discussion about related optic theories that useful for optical design. The methods were used to do the works in this study also mentioned. By combination between the own optical knowledge, design skills, applying new technology and the powerful of software, the lens has approached a good quality of performance.

Tessar lens and Cooke Triplet lens were the two outstanding lens and were widely used in many applications, so a research and design new versions of these lens will be the main tasks in this study.

Keywords: Photographic lens, Cooke Triplet lens, Tessar lens, history of lens

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