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Introduction

This volume contains the proceedings of Zoom Lenses V, the fifth SPIE conference on zoom lenses.

It was only about 50 years ago that optimization techniques were first applied to zoom lens design. During this time, computer software for the design of conventional lenses has progressed to the level that even the starting point can be determined. Papers presented at the Zoom Lenses V conference demonstrate that zoom lens design software is now effective in selecting promising starting points. The authors suggest further developments can be expected.

Applications for zoom lenses are now considerably broader than those of the past. These papers describe new designs for reflective and decentered systems, imaging in multiple spectral bands, and collimation. The papers also discuss special problems associated with manufacturing tolerances.

Although the computer software has advanced, the value of classical aberration theory has not been abandoned. Several authors show the usefulness of classical aberration theory coupled with thin lens design techniques not only for providing insight and understanding, but to be used in the design optimization itself. Authors also demonstrate the importance of determining the optimum aperture stop location in the initial design stages.

The papers are organized into five different sessions: Special; Theory and Analysis; Applications I - Infrared; Applications II - Camera Lens; and Applications III – Camera Lens.

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