

ABERRATIONS



James C. Wyant
 Optical Sciences Center
 University of Arizona
 Tucson, Arizona 85721

	Page
1.1 Aberration Free Image	1
1.2 Spherical Wavefront, Defocus, and Lateral Shift	13
1.3 Angular, Transverse, and Longitudinal Aberration	19
1.4 Seidel Aberrations	23
1.4.1 Spherical Aberration	25
1.4.2 Coma	32
1.4.3 Astigmatism	37
1.4.4 Field Curvature	41
1.4.5 Distortion	44
1.5 Zernike Polynomials	44
1.6 Peak-Valley and RMS Wavefront Aberration	51
1.7 Strehl Ratio	52
1.8 Chromatic Aberrations	55
1.9 Aberrations Introduced by Plane Parallel Plates	56
1.10 Aberrations of Simple Lenses	65
1.11 Conics	69
1.11.1 Basic Properties	69
1.11.2 Spherical Aberration	75
1.11.3 Coma	76
1.11.4 Astigmatism	77
1.12 General Aspheres	77
References	80