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Autore	Spencer Herbert
Titolo	Autobiographie : naissance de l'evolutionisme liberal / / Herbert Spencer
Pubbl/distr/stampa	Chicoutimi : , : J.-M. Tremblay, , 2002
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Autore	Riedl Max J
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Pubbl/distr/stampa	Bellingham, Wash., : SPIE Press, c2009
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Nota di contenuto	Chapter 1. Law of refraction: the foundation of geometrical optics. 1.1. Introduction -- 1.2. Fermat's principle -- 1.3. Snell and the lens -- 1.4. Graphical ray tracing -- 1.5. Paraxial ray tracing -- Chapter 2. Best shape for a thin lens. 2.1. Concept of thin lens -- 2.2. Object at any position -- 2.3. Object at infinity with added field of view -- 2.4. Special case. Chapter 3. Best shapes for multiple thin lenses, aspherizing, and the natural stop position. 3.1. Introduction -- 3.2. Best shapes for minimum spherical aberration -- 3.3. Aspherizing a singlet to eliminate spherical aberration -- 3.4. Correcting coma and spherical aberration -- 3.5. Natural stop position. -- Chapter 4. Transition from a thin lens to a thick lens. 4.1. Introduction -- 4.2. Adding a thickness and changing the second surface radius -- 4.3. Change of spherical aberration with added thickness -- Chapter 5. Achromats. 5.1. Introduction -- 5.2. Thin achromat for the VIS spectrum, on-axis performance -- 5.3. Smith's method of determining the surface shapes -- 5.4. Achromat for the MWIR region -- 5.5. Achromat for the LWIR region -- 5.6. Diamond-turned hybrid. Chapter 6. Systems with two separated components. 6.1. Introduction -- 6.2. Dialyte : an air-spaced achromat -- 6.3. Telephoto and reversed telephoto.-- Chapter 7. From an air-spaced doublet to a triplet. 7.1. Introduction -- 7.2. Chromatic aberration -- 7.3. Example, a conventional triplet -- 7.4. Hybrid Petzval objective with a cold stop. -- Chapter 8. A hybrid for two wavelengths. 8.1. Introduction -- 8.2.

Basic lens shape for the long wavelength -- 8.3. Required diffractive profile.
Chapter 9. Athermats. 9.1. Introduction -- 9.2. Focus shift of a refractive element -- 9.3. Athermalization with a doublet -- 9.4. Focus shift of a diffractive lens -- 9.5. Design examples -- 9.6. Impact of housing material -- 9.7. Athermat for the CO2 laser line -- 9.8. Athermalized achromat -- 9.9. Effect of quarter-wave limit without athermalization.-- Chapter 10. The Ball lens. 10.1. Introduction -- 10.2. Spherical aberration -- 10.3. Coma -- 10.4. Astigmatism.-- Chapter 11. Seidel and the Pegel diagrams. 11.1. Introduction -- 11.2. Triplet for the LWIR region -- 11.3. Cassegrain version with a Maksutov-Mangin mirror combination for the LWIR region.
Chapter 12. The single-imaging mirror. 12.1. Introduction -- 12.2. Spherical mirror -- 12.3. Toroidal mirrors -- 12.4. Examples -- 12.5. Parabolic mirror -- 12.6. Manufacturing remarks -- 12.7. Mangin mirror.-- Chapter 13. Eight single optical elements as imaging objectives. 13.1. Introduction -- 13.2. Diffraction limit -- 13.3. Eight chosen configurations -- 13.4. Shapes of the elements -- 13.5. Aberrations -- 13.6. Examples.
Chapter 14. A progression of performance with an increase in lens complexity. 14.1. Objectives -- Chapter 15. Two-mirror systems as telescope and microscope objectives. 15.1. Introduction -- 15.2. Basic Cassegrain telescope layout -- 15.3. Cassegrain with two spherical mirrors -- 15.4. Classic Cassegrain system -- 15.5. Dall-Kirkham arrangement -- 15.6. Ritchey-Chretien configuration -- 15.7. Examples -- 15.8. Cassegrain with Mangin as a secondary reflector -- 15.9. Gregorian telescope -- 15.10. Gregorian microscope objective -- 15.11. Two Schwarzschild objectives -- 15.12. Solid microscope objective.
Chapter 16. The plane-parallel plate. 16.1. Introduction -- 16.2. Aberrations -- 16.3. Shift of image -- 16.4. Tilted plate -- 16.5. Two tilted plates.-- Chapter 17. MTF, limits, and pixel sizes. 17.1. Introduction -- 17.2. Optical modulation transfer function -- 17.3. Focal plane array -- Chapter 18. Details of a hybrid lens. 18.1. Introduction -- 18.2. Hybrid -- 18.3. Coordinates of the combined surface.
Chapter 19. From the Hoegh meniscus to double anastigmats. 19.1. Introduction -- 19.2. Hoegh meniscus -- 19.3. Hypergon lens -- 19.4. Achromatic double lens -- 19.5. Double anastigmats -- Index.

Sommario/riassunto

This text is written for engineers and scientists who have some experience in the field of optics and want to know more about the details and derivations of equations used in optical design. Organized by topic, the book begins with the fundamental law of geometrical optics, Snell's law of refraction, and states the paraxial ray trace equations, then moves on to thin lenses and increasingly more sophisticated components and multi-element systems. Each topic is covered in depth and provides comprehensive information on performance and limitations. While the text is based on general optical laws, special emphasis has been placed on the two major infrared regions--the mid-wave (MWIR) and the long-wave (LWIR). This is particularly important with regard to diffractive hybrids, which have found their place in these long wavelength areas for the correction of chromatic aberrations and athermalization. Comments relating to single-point diamond turning have also been included because this process is predominantly used to produce optical elements for the infrared regions.