Optics Classification and Indexing Scheme (OCIS)

The Optics Classification and Indexing Scheme (OCIS) provides a flexible, comprehensive classification system for all optical author input and user retrieval needs. OCIS has a two-level hierarchical structure containing 36 main headers and approximately 1100 subcategories. OSA authors, presenters, and reviewers use OCIS to classify and index journal articles, meeting abstracts and presentations, and areas of research interest and expertise.

Suggestions for changes or additions can be sent to OCIS@osa.org.

Main Categories

000.0000	General
010.0010	Atmospheric and oceanic optics
020.0020	Atomic and molecular physics
030.0030	Coherence and statistical optics
040.0040	Detectors
050.0050	Diffraction and gratings
060.0060	Fiber optics and optical communications
070.0070	Fourier optics and signal processing
080.0080	Geometric optics
090.0090	Holography
100.0100	Image processing
110.0110	Imaging systems
120.0120	Instrumentation, measurement, and metrology
130.0130	Integrated optics
140.0140	Lasers and laser optics
150.0150	Machine vision
160.0160	Materials
170.0170	Medical optics and biotechnology
180.0180	Microscopy
190.0190	Nonlinear optics
200.0200	Optics in computing
210.0210	Optical data storage
220.0220	Optical design and fabrication
230.0230	Optical devices
240.0240	Optics at surfaces
250.0250	Optoelectronics
260.0260	Physical optics
270.0270	Quantum optics
280.0280	Remote sensing and sensors
290.0290	Scattering
300.0300	Spectroscopy
310.0310	Thin films
320.0320	Ultrafast optics
330.0330	Vision, color, and visual optics
340.0340	X-ray optics
350.0350	Other areas of optics

Complete Listing

000.0000 General
000.1200 Announcements, awards, news, and organizational activities
000.1410 Biography
000.1430 Biology and medicine
000.1570 Chemistry
000.1600 Classical and quantum physics
000.1780 Conferences, lectures, and institutes
000.2060 Education
000.2170 Equipment and techniques
000.2190 Experimental physics
000.2658 Fundamental tests
000.2690 General physics
000.2700 General science
000.2780 Gravity
000.2850 History and philosophy
000.3110 Instruments, apparatus, and components common to the sciences
000.3860 Mathematical methods in physics
000.3870 Mathematics
000.4430 Numerical approximation and analysis
000.4895 OSA history
000.4920 Other life sciences
000.4930 Other topics of general interest
000.5360 Physics literature and publications
000.5490 Probability theory, stochastic processes, and statistics
000.5920 Science and society
000.6590 Statistical mechanics
000.6800 Theoretical physics
000.6850 Thermodynamics

010.0010 Atmospheric and oceanic optics
010.0280 Remote sensing and sensors
010.1030 Absorption
010.1080 Active or adaptive optics
010.1100 Aerosol detection
010.1110 Aerosols
010.1120 Air pollution monitoring
010.1280 Atmospheric composition
010.1285 Atmospheric correction
010.1290 Atmospheric optics
010.1300 Atmospheric propagation
010.1310 Atmospheric scattering
010.1320 Atmospheric transmittance
010.1330 Atmospheric turbulence
010.1350 Backscattering
010.1615 Clouds
010.1690 Color
010.2940 Ice crystal phenomena
010.3310 Laser beam transmission
010.3640 Lidar
010.3920 Meteorology
010.4030 Mirages and refraction
010.4450 Oceanic optics
010.4455 Oceanic propagation
010.4458 Oceanic scattering
010.4950 Ozone
010.5620 Radiative transfer
010.5630 Radiometry
010.7030 Troposphere
010.7060 Turbulence
010.7295 Visibility and imaging
010.7340 Water
010.7350 Wave-front sensing

020.0020 Atomic and Molecular Physics
020.1335 Atom optics
020.1475 Bose-Einstein condensates
020.1670 Coherent optical effects
020.2070 Effects of collisions
020.2649 Strong field laser physics
020.2930 Hyperfine structure
020.3260 Isotope shifts
020.3320 Laser cooling
020.3690 Line shapes and shifts
020.4180 Multiphoton processes
020.4900 Oscillator strengths
020.5580 Quantum electrodynamics
020.5780 Rydberg states
020.6580 Stark effect
020.7010 Laser trapping
020.7490 Zeeman effect

030.0030 Coherence and statistical optics
030.1640 Coherence
030.1670 Coherent optical effects
030.4070 Modes
030.4280 Noise in imaging systems
030.5260 Photon counting
030.5290 Photon statistics
030.5620 Radiative transfer
030.5630 Radiometry
030.5770 Roughness
030.6140 Speckle
030.6600 Statistical optics
030.6610 Stellar speckle interferometry
030.7060 Turbulence

040.0040 Detectors
040.1240 Arrays
040.1345 Avalanche photodiodes (APDs)
040.1490 Cameras
040.1520 CCD, charge-coupled device
040.1880 Detection
040.2235 Far infrared or terahertz
040.2480 FLIR, forward-looking infrared
040.2840 Heterodyne
040.3060 Infrared
040.3780 Low light level
040.4200 Multiple quantum well
040.5150 Photoconductivity
040.5160 Photodetectors
040.5190 Photographic film
040.5250 Photomultipliers
040.5350 Photovoltaic
040.5570 Quantum detectors
040.6040 Silicon
040.6070 Solid state detectors
040.6808 Thermal (uncooled) IR detectors, arrays and imaging
040.7190 Ultraviolet
040.7290 Video
040.7480 X-rays, soft x-rays, extreme ultraviolet (EUV)

050.0050 Diffraction and gratings
050.1220 Apertures
050.1380 Binary optics
050.1590 Chirping

050.1755 Computational electromagnetic methods
050.1930 Dichroism
050.1940 Diffraction
050.1950 Diffraction gratings
050.1960 Diffraction theory
050.1965 Diffractive lenses
050.1970 Diffractive optics
050.2065 Effective medium theory
050.2230 Fabry-Perot
050.2555 Form birefringence
050.2770 Gratings
050.4865 Optical vortices
050.5080 Phase shift
050.5082 Phase space in wave options
050.5298 Photonic crystals
050.5745 Resonance domain
050.6624 Subwavelength structures
050.6875 Three-dimensional fabrication
050.7330 Volume gratings

060.0060 Fiber optics and optical communications
060.1155 All-optical networks
060.1660 Coherent communications
060.1810 Buffers, couplers, routers, switches, and multiplexers
060.2270 Fiber characterization
060.2280 Fiber design and fabrication
060.2290 Fiber materials
060.2300 Fiber measurements
060.2310 Fiber optics
060.2320 Fiber optics amplifiers and oscillators
060.2330 Fiber optics communications
060.2340 Fiber optics components
060.2350 Fiber optics imaging
060.2360 Fiber optics links and subsystems
060.2370 Fiber optics sensors
060.2380 Fiber optics sources and detectors
060.2390 Fiber optics, infrared
060.2400 Fiber properties
060.2410 Fibers, erbium
060.2420 Fibers, polarization-maintaining
060.2430 Fibers, single-mode
060.2605 Free-space optical communication
060.2630 Frequency modulation
060.2800 Gyroscopes
060.2840 Heterodyne
060.2920 Homodyning
060.3510 Lasers, fiber
060.3735 Fiber Bragg gratings
060.3738 Fiber Bragg gratings, photosensitivity
060.4005 Microstructured fibers
060.4080 Modulation
060.4230 Multiplexing
060.4250 Networks
060.4251 Networks, assignment and routing algorithms
060.4252 Networks, broadcast
060.4253 Networks, circuit-switched
060.4254 Networks, combinatorial network design
060.4255 Networks, multicast
060.4256 Networks, network optimization
060.4257 Networks, network survivability
060.4258 Networks, network topology
060.4259 Networks, packet-switched
060.4261 Networks, protection and restoration
060.4262 Networks, ring
060.4263 Networks, star
060.4264 Networks, wavelength assignment

060.4265 Networks, wavelength routing
060.4370 Nonlinear optics, fibers
060.4510 Optical communications
060.4785 Optical security and encryption
060.5060 Phase modulation
060.5295 Photonic crystal fibers
060.5530 Pulse propagation and temporal solitons
060.5565 Quantum communications
060.5625 Radio frequency photonics
060.6718 Switching, circuit
060.6719 Switching, packet
060.7140 Ultrafast processes in fibers

070.0070 Fourier optics and signal processing
070.1060 Acousto-optical signal processing
070.1170 Analog optical signal processing
070.1675 Coherent states (in wave optics)
070.2025 Discrete optical signal processing
070.2465 Finite analogs of Fourier transforms
070.2575 Fractional Fourier transforms
070.2580 Paraxial wave optics
070.2590 ABCD transforms
070.2615 Frequency filtering
070.3185 Invariant optical fields
070.4340 Nonlinear optical signal processing
070.4550 Correlators
070.4560 Data processing by optical means
070.4690 Morphological transformations
070.4790 Spectrum analysis
070.5010 Pattern recognition
070.5040 Phase conjugation
070.5753 Resonators
070.6020 Continuous optical signal processing
070.6110 Spatial filtering
070.6120 Spatial light modulators
070.6760 Talbot and self-imaging effects
070.7145 Ultrafast processing
070.7345 Wave propagation
070.7425 Quasi-probability distribution functions

080.0080 Geometric optics
080.1005 Aberration expansions
080.1010 Aberrations (global)
080.1235 Apparent images
080.1238 Array waveguide devices
080.1510 Propagation methods
080.1665 Coherent design
080.1753 Computation methods
080.2175 Etendue
080.2203 Fabrication, electroforming
080.2205 Fabrication, injection molding
080.2208 Fabrication, tolerancing
080.2468 First-order optics
080.2575 Fractional Fourier transforms
080.2710 Inhomogeneous optical media
080.2720 Mathematical methods (general)
080.2730 Matrix methods in paraxial optics
080.2740 Geometric optical design
080.3095 Inhomogeneous elements in optical systems
080.3620 Lens system design
080.3630 Lenses
080.3645 Lie algebraic and group methods
080.3685 Lightpipes
080.3875 Matrix methods in metaxial expansions
080.4035 Mirror system design
080.4225 Nonspherical lens design

080.4228 Nonspherical mirror surfaces
080.4295 Nonimaging optical systems
080.4298 Nonimaging optics
080.4865 Optical vortices
080.5084 Phase space methods of analysis
080.5692 Ray trajectories in inhomogeneous media
080.6755 Systems with special symmetry
080.7343 Wave dressing of rays

090.0090 Holography
090.1000 Aberration compensation
090.1705 Color holography
090.1760 Computer holography
090.1970 Diffractive optics
090.1995 Digital holography
090.2645 Stratified volume holograms
090.2820 Heads-up displays
090.2870 Holographic display
090.2880 Holographic interferometry
090.2890 Holographic optical elements
090.2900 Optical storage materials
090.2910 Holography, microwave
090.4220 Multiplex holography
090.5640 Rainbow holography
090.5694 Real-time holography
090.6186 Spectral holography
090.7330 Volume gratings

100.0100 Image processing
100.0118 Imaging ultrafast phenomena
100.1160 Analog optical image processing
100.1390 Binary phase-only filters
100.1455 Blind deconvolution
100.1830 Deconvolution
100.1930 Dichroism
100.2000 Digital image processing
100.2550 Focal-plane-array image processors
100.2650 Fringe analysis
100.2810 Halftone image reproduction
100.2960 Image analysis
100.2980 Image enhancement
100.3005 Image recognition devices
100.3008 Image recognition, algorithms and filters
100.3010 Image reconstruction techniques
100.3020 Image reconstruction-restoration
100.3175 Interferometric imaging
100.3190 Inverse problems
100.3200 Inverse scattering
100.4145 Motion, hyperspectral image processing
100.4550 Correlators
100.4992 Pattern, nonlinear correlators
100.4993 Pattern recognition, Baysian processors
100.4994 Pattern recognition, image transforms
100.4995 Pattern recognition, metrics
100.4996 Pattern recognition, neural networks
100.4997 Pattern recognition, nonlinear spatial filters
100.4998 Pattern recognition, optical security and encryption
100.4999 Pattern recognition, target tracking
100.5010 Pattern recognition
100.5070 Phase retrieval
100.5088 Phase unwrapping
100.5090 Phase-only filters
100.5760 Rotation-invariant pattern recognition

100.6640 Superresolution
100.6740 Synthetic discrimination functions
100.6890 Three-dimensional image processing
100.6950 Tomographic image processing
100.7410 Wavelets

110.0110 Imaging systems
110.0113 Imaging through turbid media
110.0115 Imaging through turbulent media
110.0180 Microscopy
110.1080 Active or adaptive optics
110.1085 Adaptive imaging
110.1220 Apertures
110.1455 Blind deconvolution
110.1650 Coherence imaging
110.1758 Computational imaging
110.2350 Fiber optics imaging
110.2650 Fringe analysis
110.2760 Gradient-index lenses
110.2945 Illumination design
110.2960 Image analysis
110.2970 Image detection systems
110.2990 Image formation theory
110.3000 Image quality assessment
110.3010 Image reconstruction techniques
110.3055 Information theoretical analysis
110.3080 Infrared imaging
110.3175 Interferometric imaging
110.3200 Inverse scattering
110.3925 Metrics
110.3960 Microlithography
110.4100 Modulation transfer function
110.4153 Motion estimation and optical flow
110.4155 Multiframe image processing
110.4190 Multiple imaging
110.4234 Multispectral and hyperspectral imaging
110.4235 Nanolithography
110.4248 Networked imaging
110.4280 Noise in imaging systems
110.4500 Optical coherence tomography
110.4850 Optical transfer functions
110.4980 Partial coherence in imaging
110.5086 Phase unwrapping
110.5100 Phased-array imaging systems
110.5120 Photoacoutic imaging
110.5125 Photoacoustics
110.5200 Photography
110.5220 Photolithography
110.5405 Polarimetric imaging
110.6150 Speckle imaging
110.6760 Talbot and self-imaging effects
110.6770 Telescopes
110.6795 Terahertz imaging
110.6820 Thermal imaging
110.6880 Three-dimensional image acquisition
110.6895 Three-dimensional lithography
110.6915 Time imaging
110.6955 Tomographic imaging
110.6960 Tomography
110.6980 Transforms
110.7050 Turbid media
110.7170 Ultrasound
110.7348 Wavefront encoding
110.7410 Wavelets
110.7440 X-ray imaging

120.0120 Instrumentation, measurement, and metrology
120.0280 Remote sensing and sensors
120.1088 Adaptive interferometry

120.1680 Collimation
120.1740 Combustion diagnostics
120.1840 Densitometers, reflectometers
120.1880 Detection
120.2040 Displays
120.2130 Ellipsometry and polarimetry
120.2230 Fabry-Perot
120.2440 Filters
120.2650 Fringe analysis
120.2820 Heads-up displays
120.2830 Height measurements
120.2880 Holographic interferometry
120.2920 Homodyning
120.3150 Integrating spheres
120.3180 Interferometry
120.3620 Lens system design
120.3688 Lightwave analyzers
120.3890 Medical optics instrumentation
120.3930 Metrological instrumentation
120.3940 Metrology
120.4120 Moire' techniques
120.4140 Monochromators
120.4290 Nondestructive testing
120.4530 Optical constants
120.4570 Optical design of instruments
120.4610 Optical fabrication
120.4630 Optical inspection
120.4640 Optical instruments
120.4800 Optical standards and testing
120.4820 Optical systems
120.4825 Optical time domain reflectometry
120.4880 Optomechanics
120.5050 Phase measurement
120.5060 Phase modulation
120.5240 Photometry
120.5410 Polarimetry
120.5475 Pressure measurement
120.5630 Radiometry
120.5700 Reflection
120.5710 Refraction
120.5790 Sagnac effect
120.5800 Scanners
120.5820 Scattering measurements
120.6085 Space instrumentation
120.6150 Speckle imaging
120.6160 Speckle interferometry
120.6165 Speckle interferometry, metrology
120.6168 Speckle interferometry, stellar
120.6200 Spectrometers and spectroscopic instrumentation
120.6650 Surface measurements, figure
120.6660 Surface measurements, roughness
120.6710 Susceptibility
120.6780 Temperature
120.6810 Thermal effects
120.7000 Transmission
120.7250 Velocimetry
120.7280 Vibration analysis

130.0130 Integrated optics
130.0250 Optoelectronics
130.1750 Components
130.2035 Dispersion compensation devices
130.2260 Ferroelectrics
130.2755 Glass waveguides
130.2790 Guided waves
130.3060 Infrared
130.3120 Integrated optics devices
130.3130 Integrated optics materials
130.3730 Lithium niobate
130.3750 Optical logic devices
130.3990 Micro-optical devices

130.4110 Modulators
130.4310 Nonlinear
130.4815 Optical switching devices
130.5296 Photonic crystal waveguides
130.5440 Polarization-selective devices
130.5460 Polymer waveguides
130.5990 Semiconductors
130.6010 Sensors
130.6622 Subsystem integration and techniques
130.6750 Systems
130.7405 Wavelength conversion devices
130.7408 Wavelength filtering devices

140.0140 Lasers and laser optics
140.1340 Atomic gas lasers
140.1540 Chaos
140.1550 Chemical lasers
140.1700 Color center lasers
140.2010 Diode laser arrays
140.2020 Diode lasers
140.2050 Dye lasers
140.2180 Excimer lasers
140.2600 Free-electron lasers (FELs)
140.3070 Infrared and far-infrared lasers
140.3210 Ion lasers
140.3280 Laser amplifiers
140.3290 Laser arrays
140.3295 Laser beam characterization
140.3298 Laser beam combining
140.3300 Laser beam shaping
140.3320 Laser cooling
140.3325 Laser coupling
140.3330 Laser damage
140.3360 Laser safety and eye protection
140.3370 Laser gyroscopes
140.3380 Laser materials
140.3390 Laser materials processing
140.3410 Laser resonators
140.3425 Laser stabilization
140.3430 Laser theory
140.3440 Laser-induced breakdown
140.3450 Laser-induced chemistry
140.3460 Lasers
140.3470 Lasers, carbon dioxide
140.3480 Lasers, diode-pumped
140.3490 Lasers, distributed-feedback
140.3500 Lasers, erbium
140.3510 Lasers, fiber
140.3515 Lasers, frequency doubled
140.3518 Lasers, frequency modulated
140.3520 Lasers, injection-locked
140.3530 Lasers, neodymium
140.3535 Lasers, phase conjugate
140.3538 Lasers, pulsed
140.3540 Lasers, Q-switched
140.3550 Lasers, Raman
140.3560 Lasers, ring
140.3570 Lasers, single-mode
140.3580 Lasers, solid-state
140.3590 Lasers, titanium
140.3600 Lasers, tunable
140.3610 Lasers, ultraviolet
140.3613 Lasers, upconversion
140.3615 Lasers, ytterbium
140.3945 Microcavities
140.3948 Microcavity devices
140.4050 Mode-locked lasers
140.4130 Molecular gas lasers
140.4480 Optical amplifiers
140.4780 Optical resonators
140.5560 Pumping
140.5680 Rare earth and transition metal solid-state lasers

140.5960 Semiconductor lasers
140.5965 Semiconductor lasers, quantum cascade
140.6630 Superradiance, superfluorescence
140.6810 Thermal effects
140.7010 Laser trapping
140.7090 Ultrafast lasers
140.7215 Undulator radiation
140.7240 UV, EUV, and X-ray lasers
140.7260 Vertical cavity surface emitting lasers
140.7270 Vertical emitting lasers
140.7300 Visible lasers

150.0150 Machine vision
150.0155 Machine vision optics
150.1135 Algorithms
150.1488 Calibration
150.1708 Color inspection
150.1835 Defect understanding
150.2945 Illumination design
150.2950 Illumination
150.3040 Industrial inspection
150.3045 Industrial optical metrology
150.4065 Vision processor architecture
150.4232 Multisensor methods
150.4620 Optical flow
150.5495 Process monitoring and control
150.5670 Range finding
150.5758 Robotic and machine control
150.6044 Smart cameras
150.6910 Three-dimensional sensing

160.0160 Materials
160.1050 Acousto-optical materials
160.1190 Anisotropic optical materials
160.1245 Artificially engineered materials
160.1435 Biomaterials
160.1585 Chiral media
160.1890 Detector materials
160.2100 Electro-optical materials
160.2120 Elements
160.2220 Defect-center materials
160.2260 Ferroelectrics
160.2290 Fiber materials
160.2540 Fluorescent and luminescent materials
160.2710 Inhomogeneous optical media
160.2750 Glass and other amorphous materials
160.2900 Optical storage materials
160.3130 Integrated optics materials
160.3220 Ionic crystals
160.3380 Laser materials
160.3710 Liquid crystals
160.3730 Lithium niobate
160.3820 Magneto-optical materials
160.3900 Metals
160.3918 Metamaterials
160.4236 Nanomaterials
160.4330 Nonlinear optical materials
160.4670 Optical materials
160.4760 Optical properties
160.4890 Organic materials
160.5140 Photoconductive materials
160.5293 Photonic bandgap materials
160.5298 Photonic crystals
160.5320 Photorefractive materials
160.5335 Photosensitive materials
160.5470 Polymers
160.5690 Rare-earth-doped materials
160.6000 Semiconductor materials
160.6030 Silica
160.6060 Solgel

160.6840 Thermo-optical materials
160.6990 Transition-metal-doped materials

170.0170 Medical optics and biotechnology
170.0110 Imaging systems
170.0180 Microscopy
170.1020 Ablation of tissue
170.1065 Acousto-optics
170.1420 Biology
170.1460 Blood gas monitoring
170.1470 Blood or tissue constituent monitoring
170.1530 Cell analysis
170.1580 Chemometrics
170.1610 Clinical applications
170.1630 Coded aperture imaging
170.1650 Coherence imaging
170.1790 Confocal microscopy
170.1850 Dentistry
170.1870 Dermatology
170.2150 Endoscopic imaging
170.2520 Fluorescence microscopy
170.2655 Functional monitoring and imaging
170.2670 Gamma ray imaging
170.2680 Gastrointestinal
170.2945 Illumination design
170.3010 Image reconstruction techniques
170.3340 Laser Doppler velocimetry
170.3650 Lifetime-based sensing
170.3660 Light propagation in tissues
170.3830 Mammography
170.3880 Medical and biological imaging
170.3890 Medical optics instrumentation
170.4090 Modulation techniques
170.4440 ObGyn
170.4460 Ophthalmic optics and devices
170.4470 Ophthalmology
170.4500 Optical coherence tomography
170.4520 Optical confinement and manipulation
170.4580 Optical diagnostics for medicine
170.4730 Optical pathology
170.4940 Otolaryngology
170.5120 Photoacoustic imaging
170.5180 Photodynamic therapy
170.5270 Photon density waves
170.5280 Photon migration
170.5380 Physiology
170.5660 Raman spectroscopy
170.5755 Retina scanning
170.5810 Scanning microscopy
170.6280 Spectroscopy, fluorescence and luminescence
170.6480 Spectroscopy, speckle
170.6510 Spectroscopy, tissue diagnostics
170.6795 Terahertz imaging
170.6900 Three-dimensional microscopy
170.6920 Time-resolved imaging
170.6930 Tissue
170.6935 Tissue characterization
170.6940 Tissue welding
170.6960 Tomography
170.7050 Turbid media
170.7160 Ultrafast technology
170.7170 Ultrasound
170.7180 Ultrasound diagnostics
170.7230 Urology
170.7440 X-ray imaging

180.0180 Microscopy
180.1655 Coherence tomography
180.1790 Confocal microscopy

180.2520 Fluorescence microscopy
180.3170 Interference microscopy
180.4243 Near-field microscopy
180.4315 Nonlinear microscopy
180.5655 Raman microscopy
180.5810 Scanning microscopy
180.6900 Three-dimensional microscopy
180.7460 X-ray microscopy

190.0190 Nonlinear optics
190.1450 Bistability
190.1900 Diagnostic applications of nonlinear optics
190.2055 Dynamic gratings
190.2620 Harmonic generation and mixing
190.2640 Stimulated scattering, modulation, etc.
190.3100 Instabilities and chaos
190.3270 Kerr effect
190.3970 Microparticle nonlinear optics
190.4160 Multiharmonic generation
190.4180 Multiphoton processes
190.4223 Nonlinear wave mixing
190.4350 Nonlinear optics at surfaces
190.4360 Nonlinear optics, devices
190.4370 Nonlinear optics, fibers
190.4380 Nonlinear optics, four-wave mixing
190.4390 Nonlinear optics, integrated optics
190.4400 Nonlinear optics, materials
190.4410 Nonlinear optics, parametric processes
190.4420 Nonlinear optics, transverse effects in
190.4710 Optical nonlinearities in organic materials
190.4720 Optical nonlinearities of condensed matter
190.4870 Photothermal effects
190.4970 Parametric oscillators and amplifiers
190.4975 Parametric processes
190.5040 Phase conjugation
190.5330 Photorefractive optics
190.5530 Pulse propagation and temporal solitons
190.5650 Raman effect
190.5890 Scattering, stimulated
190.5940 Self-action effects
190.5970 Semiconductor nonlinear optics including MQW
190.6135 Spatial solitons
190.7070 Two-wave mixing
190.7110 Ultrafast nonlinear optics
190.7220 Upconversion

200.0200 Optics in computing
200.1130 Algebraic optical processing
200.2605 Free-space optical communication
200.2610 Free-space digital optics
200.3050 Information processing
200.3760 Logic-based optical processing
200.4260 Neural networks
200.4490 Optical buffers
200.4540 Optical content addressable memory processors
200.4560 Optical data processing
200.4650 Optical interconnects
200.4660 Optical logic
200.4690 Morphological transformations
200.4700 Optical neural systems
200.4740 Optical processing
200.4860 Optical vector-matrix systems
200.4880 Optomechanics

200.4960 Parallel processing
200.6015 Signal regeneration
200.6046 Smart pixel systems
200.6715 Switching

210.0210 Optical data storage
210.1635 Coding for optical storage
210.2860 Holographic and volume memories
210.3810 Magneto-optic systems
210.3820 Magneto-optical materials
210.4245 Near-field optical recording
210.4590 Optical disks
210.4680 Optical memories
210.4770 Optical recording
210.4810 Optical storage-recording materials
210.4965 Parallel readout

220.0220 Optical design and fabrication
220.1000 Aberration compensation
220.1010 Aberrations (global)
220.1080 Active or adaptive optics
220.1140 Alignment
220.1230 Apodization
220.1250 Aspherics
220.1770 Concentrators
220.1920 Diamond machining
220.2560 Propagating methods
220.2740 Geometric optical design
220.2945 Illumination design
220.3620 Lens system design
220.3630 Lenses
220.3740 Lithography
220.4000 Microstructure fabrication
220.4241 Nanostructure fabrication
220.4298 Nonimaging optics
220.4610 Optical fabrication
220.4830 Systems design
220.4840 Testing
220.4880 Optomechanics
220.5450 Polishing

230.0230 Optical devices
230.0040 Detectors
230.0250 Optoelectronics
230.1040 Acousto-optical devices
230.1150 All-optical devices
230.1360 Beam splitters
230.1480 Bragg reflectors
230.1950 Diffraction gratings
230.1980 Diffusers
230.2035 Dispersion compensation devices
230.2090 Electro-optical devices
230.2240 Faraday effect
230.2285 Fiber devices and optical amplifiers
230.3120 Integrated optics devices
230.3205 Invisibility cloaks
230.3240 Isolators
230.3670 Light-emitting diodes
230.3720 Liquid-crystal devices
230.3750 Optical logic devices
230.3810 Magneto-optic systems
230.3990 Micro-optical devices
230.4000 Microstructure fabrication
230.4040 Mirrors
230.4110 Modulators
230.4170 Multilayers
230.4205 Multiple quantum well (MQW) modulators
230.4320 Nonlinear optical devices
230.4480 Optical amplifiers
230.4555 Coupled resonators

230.4685 Optical microelectromechanical devices
230.4910 Oscillators
230.5160 Photodetectors
230.5170 Photodiodes
230.5298 Photonic crystals
230.5440 Polarization-selective devices
230.5480 Prisms
230.5590 Quantum-well, -wire and -dot devices
230.5750 Resonators
230.6046 Smart pixel systems
230.6080 Sources
230.6120 Spatial light modulators
230.7020 Traveling-wave devices
230.7370 Waveguides
230.7380 Waveguides, channeled
230.7390 Waveguides, planar
230.7400 Waveguides, slab
230.7405 Wavelength conversion devices
230.7408 Wavelength filtering devices

240.0240 Optics at surfaces
240.0310 Thin films
240.1485 Buried interfaces
240.2130 Ellipsometry and polarimetry
240.3695 Linear and nonlinear light scattering from surfaces
240.3990 Micro-optical devices
240.4350 Nonlinear optics at surfaces
240.5420 Polaritons
240.5440 Polarization-selective devices
240.5450 Polishing
240.5698 Reflectance anisotropy spectroscopy
240.5770 Roughness
240.6380 Spectroscopy, modulation
240.6490 Spectroscopy, surface
240.6645 Surface differential reflectance
240.6648 Surface dynamics
240.6670 Surface photochemistry
240.6675 Surface photoemission and photoelectron spectroscopy
240.6680 Surface plasmons
240.6690 Surface waves
240.6695 Surface-enhanced Raman scattering
240.6700 Surfaces
240.7040 Tunneling

250.0250 Optoelectronics
250.0040 Detectors
250.1345 Avalanche photodiodes (APDs)
250.1500 Cathodoluminescence
250.2080 Polymer active devices
250.3140 Integrated optoelectronic circuits
250.3680 Light-emitting polymers
250.3750 Optical logic devices
250.4110 Modulators
250.4390 Nonlinear optics, integrated optics
250.4480 Optical amplifiers
250.4745 Optical processing devices
250.5230 Photoluminescence
250.5300 Photonic integrated circuits
250.5403 Plasmonics
250.5460 Polymer waveguides
250.5530 Pulse propagation and temporal solitons
250.5590 Quantum-well, -wire and -dot devices
250.5960 Semiconductor lasers
250.5980 Semiconductor optical amplifiers
250.6715 Switching

250.7260 Vertical cavity surface emitting lasers
250.7270 Vertical emitting lasers
250.7360 Waveguide modulators

260.0260 Physical optics
260.1180 Crystal optics
260.1440 Birefringence
260.1560 Chemiluminescence
260.1960 Diffraction theory
260.2030 Dispersion
260.2065 Effective medium theory
260.2110 Electromagnetic optics
260.2130 Ellipsometry and polarimetry
260.2160 Energy transfer
260.2510 Fluorescence
260.2710 Inhomogeneous optical media
260.3060 Infrared
260.3090 Infrared, far
260.3160 Interference
260.3230 Ionization
260.3800 Luminescence
260.3910 Metal optics
260.5130 Photochemistry
260.5150 Photoconductivity
260.5210 Photoionization
260.5430 Polarization
260.5740 Resonance
260.5950 Self-focusing
260.6042 Singular optics
260.6048 Soft x-rays
260.6580 Stark effect
260.6970 Total internal reflection
260.7120 Ultrafast phenomena
260.7190 Ultraviolet
260.7200 Ultraviolet, extreme
260.7210 Ultraviolet, vacuum
260.7490 Zeeman effect

270.0270 Quantum optics
270.1670 Coherent optical effects
270.2500 Fluctuations, relaxations, and noise
270.3100 Instabilities and chaos
270.3430 Laser theory
270.4180 Multiphoton processes
270.5290 Photon statistics
270.5530 Pulse propagation and temporal solitons
270.5565 Quantum communications
270.5568 Quantum cryptography
270.5570 Quantum detectors
270.5580 Quantum electrodynamics
270.5585 Quantum information and processing
270.6570 Squeezed states
270.6620 Strong-field processes
270.6630 Superradiance, superfluorescence

280.0280 Remote sensing and sensors
280.1100 Aerosol detection
280.1120 Air pollution monitoring
280.1310 Atmospheric scattering
280.1350 Backscattering
280.1355 Bathymetry
280.1415 Biological sensing and sensors
280.1545 Chemical analysis
280.1740 Combustion diagnostics
280.1910 DIAL, differential absorption lidar
280.2470 Flames
280.2490 Flow diagnostics
280.3340 Laser Doppler velocimetry
280.3375 Laser induced ultrasonics

280.3400 Laser range finder
280.3420 Laser sensors
280.3640 Lidar
280.4750 Optical processing of radar images
280.4788 Optical sensing and sensors
280.4991 Passive remote sensing
280.5110 Phased-array radar
280.5395 Plasma diagnostics
280.5475 Pressure measurement
280.5600 Radar
280.5715 Refractivity profiles
280.6730 Synthetic aperture radar
280.6780 Temperature
280.7060 Turbulence
280.7250 Velocimetry

290.0290   Scattering
290.1090 Aerosol and cloud effects
290.1310 Atmospheric scattering
290.1350 Backscattering
290.1483 BSDF, BRDF, and BTDF
290.1990 Diffusion
290.2200 Extinction
290.2558 Forward scattering
290.2648 Stray light
290.2745 Ghost reflections
290.3030 Index measurements
290.3200 Inverse scattering
290.3700 Linewidth
290.3770 Long-wave scattering
290.4020 Mie theory
290.4210 Multiple scattering
290.5820 Scattering measurements
290.5825 Scattering theory
290.5830 Scattering, Brillouin
290.5835 Scattering, Harvey
290.5838 Scattering, in-field
290.5839 Scattering, invisibility
290.5840 Scattering, molecules
290.5845 Scattering, out-of-field
290.5850 Scattering, particles
290.5855 Scattering, polarization
290.5860 Scattering, Raman
290.5870 Scattering, Rayleigh
290.5880 Scattering, rough surfaces
290.5890 Scattering, stimulated
290.5900 Scattering, stimulated Brillouin
290.5910 Scattering, stimulated Raman
290.5930 Scintillation
290.6815 Thermal emission
290.7050 Turbid media

300.0300   Spectroscopy
300.1030 Absorption
300.2140 Emission
300.2530 Fluorescence, laser-induced
300.2570 Four-wave mixing
300.3700 Linewidth
300.6075 Sonoluminescence
300.6170 Spectra
300.6190 Spectrometers
300.6210 Spectroscopy, atomic
300.6220 Spectroscopy, beam foil
300.6230 Spectroscopy, coherent anti-Stokes Raman scattering
300.6240 Spectroscopy, coherent transient
300.6250 Spectroscopy, condensed matter
300.6260 Spectroscopy, diode lasers
300.6270 Spectroscopy, far infrared
300.6280 Spectroscopy, fluorescence and luminescence
300.6290 Spectroscopy, four-wave mixing
300.6300 Spectroscopy, Fourier transforms

300.6310 Spectroscopy, heterodyne
300.6320 Spectroscopy, high-resolution
300.6330 Spectroscopy, inelastic scattering including Raman
300.6340 Spectroscopy, infrared
300.6350 Spectroscopy, ionization
300.6360 Spectroscopy, laser
300.6365 Spectroscopy, laser induced breakdown
300.6370 Spectroscopy, microwave
300.6380 Spectroscopy, modulation
300.6390 Spectroscopy, molecular
300.6400 Spectroscopy, molecular beam
300.6410 Spectroscopy, multiphoton
300.6420 Spectroscopy, nonlinear
300.6430 Spectroscopy, photothermal
300.6440 Spectroscopy, optogalvanic
300.6450 Spectroscopy, Raman
300.6460 Spectroscopy, saturation
300.6470 Spectroscopy, semiconductors
300.6480 Spectroscopy, speckle
300.6490 Spectroscopy, surface
300.6495 Spectroscopy, terahertz
300.6500 Spectroscopy, time-resolved
300.6520 Spectroscopy, trapped ion
300.6530 Spectroscopy, ultrafast
300.6540 Spectroscopy, ultraviolet
300.6550 Spectroscopy, visible
300.6560 Spectroscopy, x-ray

310.0310   Thin films
310.1210 Antireflection coatings
310.1515 Protective coatings
310.1620 Interference coatings
310.1860 Deposition and fabrication
310.2785 Guided wave applications
310.2790 Guided waves
310.3840 Materials and process characterization
310.3915 Metallic, opaque, and absorbing coatings
310.4165 Multilayer design
310.4925 Other properties (stress, chemical, etc.)
310.5448 Polarization, other optical properties
310.5696 Refinement and synthesis methods
310.6188 Spectral properties
310.6628 Subwavelength structures, nanostructures
310.6805 Theory and design
310.6845 Thin film devices and applications
310.6860 Thin films, optical properties
310.6870 Thin films, other properties
310.7005 Transparent conductive coatings

320.0320   Ultrafast optics
320.1590 Chirping
320.2250 Femtosecond phenomena
320.3980 Microsecond phenomena
320.4240 Nanosecond phenomena
320.5390 Picosecond phenomena
320.5520 Pulse compression
320.5540 Pulse shaping
320.5550 Pulses
320.6629 Supercontinuum generation
320.7080 Ultrafast devices
320.7085 Ultrafast information processing
320.7090 Ultrafast lasers
320.7100 Ultrafast measurements
320.7110 Ultrafast nonlinear optics
320.7120 Ultrafast phenomena

320.7130 Ultrafast processes in condensed matter, including semiconductors
320.7140 Ultrafast processes in fibers
320.7150 Ultrafast spectroscopy
320.7160 Ultrafast technology

330.0330   Vision, color, and visual optics
330.1070 Vision - acuity
330.1400 Vision - binocular and stereopsis
330.1690 Color
330.1710 Color, measurement
330.1715 Color, rendering and metamerism
330.1720 Color vision
330.1730 Colorimetry
330.1800 Vision - contrast sensitivity
330.1880 Detection
330.2210 Vision - eye movements
330.3350 Vision - laser damage
330.3790 Low vision
330.3795 Low-vision optics
330.4060 Vision modeling
330.4150 Motion detection
330.4270 Vision system neurophysiology
330.4300 Vision system - noninvasive assessment
330.4460 Ophthalmic optics and devices
330.4595 Optical effects on vision
330.4875 Optics of physiological systems
330.5000 Vision - patterns and recognition
330.5020 Perception psychology
330.5310 Vision - photoreceptors
330.5370 Physiological optics
330.5380 Physiology
330.5510 Psychophysics
330.6100 Spatial discrimination
330.6110 Spatial filtering
330.6130 Spatial resolution
330.6180 Spectral discrimination
330.6790 Temporal discrimination
330.7310 Vision
330.7320 Vision adaptation
330.7321 Vision coupled optical systems
330.7322 Visual optics, accommodation
330.7323 Visual optics, aging changes
330.7324 Visual optics, comparative animal models
330.7325 Visual optics, metrology
330.7326 Visual optics, modeling
330.7327 Visual optics, ophthalmic instrumentation
330.7328 Visual optics, opthalmic appliances
330.7329 Visual optics, pathology
330.7331 Visual optics, receptor optics
330.7333 Visual optics, refractive anomolies
330.7335 Visual optics, refractive surgery
330.7338 Visually coupled optical systems

340.0340   X-ray optics
340.1365 Bending magnet radiation
340.6720 Synchrotron radiation
340.7215 Undulator radiation
340.7430 X-ray coded apertures
340.7440 X-ray imaging
340.7450 X-ray interferometry
340.7460 X-ray microscopy
340.7470 X-ray mirrors
340.7480 X-rays, soft x-rays, extreme ultraviolet (EUV)

350.0350   Other areas of optics
350.1260 Astronomical optics
350.1270 Astronomy and astrophysics

350.1370 Berry's phase
350.1820 Damage
350.2450 Filters, absorption
350.2460 Filters, interference
350.2660 Fusion
350.2770 Gratings
350.3250 Isotope separation
350.3390 Laser materials processing
350.3450 Laser-induced chemistry
350.3618 Left-handed materials
350.3850 Materials processing
350.3950 Micro-optics

350.4010 Microwaves
350.4238 Nanophotonics and photonic crystals
350.4600 Optical engineering
350.4800 Optical standards and testing
350.4855 Optical tweezers or optical manipulation
350.4990 Particles
350.5030 Phase
350.5130 Photochemistry
350.5340 Photothermal effects
350.5400 Plasmas

350.5500 Propagation
350.5610 Radiation
350.5720 Relativity
350.5730 Resolution
350.6050 Solar energy
350.6090 Space optics
350.6670 Surface photochemistry
350.6830 Thermal lensing
350.6980 Transforms
350.7420 Waves