

## INDEX OF CLASSES AND THEIR MEMBERS

**Bold** numbers indicate the page of a class definition. Class methods and fields are indented.

AdaptiveSampler, 386	AnimatedTransform, 96	Offset(), 73
GetMoreSamples(), 387	actuallyAnimated, 96	operator[], 73
GetSubSampler(), 386	Decompose(), 97	Overlaps(), 72
MaximumSampleCount(), 386	endTime, 96	pMax, 71
maxSamples, 386	endTransform, 96	pMin, 71
method, 386	Interpolate(), 99	SurfaceArea(), 72
minSamples, 386	MotionBounds(), 100	Union(), 71
needsSupersampling(), 388	R, 96	Volume(), 72
ReportResults(), 387	S, 96	BestCandidateSampler, 381
RoundSize(), 386	startTime, 96	GetMoreSamples(), 383
sampleBuf, 386	startTransform, 96	GetSubSampler(), 383
supersamplePixel, 386	T, 96	MaximumSampleCount(), 383
xPos, 386	Anisotropic, 458	RoundSize(), 383
yPos, 386	D(), 460	sampleOffsets, 384
Aggregate, 192	ex, 458	sampleTable, 383
AggregateTest, 247	ey, 458	tableOffset, 381
bboxes, 247	Pdf(), 700	tableWidth, 381
nIterations, 247	sampleFirstQuadrant(), 700	xTile, 381
primitives, 247	Sample_f(), 699	xTileEnd, 381
Render(), 247	AreaLight, 623	xTileStart, 381
AggregateVolume, 597	L(), 625	yTile, 381
bound, 597	AtomicInt32, 1036	yTileEnd, 381
IntersectP(), 598	AtomicInt64, 1036	yTileStart, 381
Lve(), 597	BBox, 70	BilerpTexture, 522
p(), 597	BoundingSphere(), 74	Evaluate(), 523
regions, 597	Expand(), 72	mapping, 522
sigma_a(), 597	Inside(), 72	v00, 522
sigma_s(), 597	IntersectP(), 194	v01, 522
sigma_t(), 597	Lerp(), 73	v10, 522
	MaximumExtent(), 73	v11, 522

- Blinn, 456
  - D(), 457
  - exponent, 456
  - Pdf(), 699
  - Sample\_f(), 696
- BlockedArray, 1017
- Block(), 1019
- BlockSize(), 1019
  - data, 1018
  - logBlockSize, 1017
  - Offset(), 1019
  - operator(), 1020
  - RoundUp(), 1019
  - uBlocks, 1018
  - uRes, 1018
  - uSize(), 1019
  - vRes, 1018
  - vSize(), 1019
- BoundEdge, 235
  - END, 235
  - primNum, 235
  - START, 235
  - t, 235
  - type, 235
- BoxFilter, 396
  - Evaluate(), 396
- BRDFToBTDF, 431
  - brdf, 431
  - f(), 431
  - otherHemisphere(), 431
- BSDF, 478
  - Add(), 479
  - bxdFs, 479
  - dgShading, 479
  - eta, 479
  - f(), 481
  - LocalToWorld(), 480
  - MAX\_BxDFs, 479
  - nBxDFs, 479
  - ng, 479
  - nn, 479
  - NumComponents(), 479
  - Pdf(), 708
  - rho(), 482
  - Sample\_f(), 706
  - sn, 479
  - tn, 479
  - WorldToLocal(), 480
- BSDFSsample, 705
  - uComponent, 705
  - uDir, 705
- BSDFSsampleOffsets, 706
  - componentOffset, 706
  - dirOffset, 706
  - nSamples, 706
  - e, 599
- eta(), 599
- sigma\_a(), 599
- sigma\_prime\_s(), 599
- sigp\_s, 599
- sig\_a, 599
- bounds, 219
- count, 219
- BVHAccel, 209
  - flattenBVHtree(), 224
  - Intersect(), 224
  - IntersectP(), 227
  - maxPrimsInNode, 210
  - nodes, 223
  - primitives, 210
  - recursiveBuild(), 213
  - splitMethod, 210
- BVHBuildNode, 211
  - bounds, 211
  - children, 211
  - firstPrimOffset, 211
  - InitInterior(), 212
  - InitLeaf(), 212
  - nPrimitives, 211
  - splitAxis, 211
- BVHPrimitiveInfo, 211
  - bounds, 211
  - centroid, 211
  - primitiveNumber, 211
- BxDF, 428
  - f(), 429
  - MatchesFlags(), 429
  - Pdf(), 695
  - rho(), 430
  - Sample\_f(), 694
  - type, 429
- BxDFType, 428
- Camera, 302
  - CameraToWorld, 302
  - film, 302
  - GenerateRay(), 303
  - GenerateRayDifferential(), 303
  - shutterClose, 302
  - shutterOpen, 302
- CameraSample, 342
  - imageX, 342
  - imageY, 342
  - lensU, 342
  - lensV, 342
  - time, 342
- Checkerboard2DTexture, 547
  - aaMethod, 548
  - CLOSEDFORM, 548
  - Evaluate(), 548
  - mapping, 547
  - NONE, 548
  - tex1, 547
  - tex2, 547
- Checkerboard3DTexture, 552
  - Evaluate(), 553
  - mapping, 553
  - tex1, 553
  - tex2, 553
- ClosePhoton, 822
  - distanceSquared, 822
  - photon, 822
- CoefficientSpectrum, 264
  - c, 264
- CompareNode, 1031
  - Run(), 816
- Cone, 133
- ConstantTexture, 520
  - Evaluate(), 520
- CreateRadianceProbes, 958
  - bbox, 958
  - camera, 958
  - filename, 958
  - includeDirectInProbes, 958
  - includeIndirectInProbes, 958
  - Li(), 958
  - lmax, 958
  - nIndirSamples, 958
  - probeSpacing, 958
  - Render(), 959
  - surfaceIntegrator, 958
  - time, 958
  - Transmittance(), 958
  - volumeIntegrator, 958
  - Run(), 963
- Cylinder, 124
  - Area(), 129
  - Intersect(), 127
  - ObjectBound(), 126
  - phiMax, 126
  - radius, 126
  - Sample(), 719
  - zmax, 126
  - zmin, 126
- CylindricalMapping2D, 517
  - cylinder(), 517
  - Map(), 517
  - WorldToTexture, 517
- DensityRegion, 591
  - Density(), 592
  - g, 592
  - le, 592
  - Lve(), 592
  - p(), 592
  - sigma\_a(), 592
  - sigma\_s(), 592
  - sigma\_t(), 592
  - sig\_a, 592
  - sig\_s, 592

- tau(), 733
- WorldToVolume, 592
- DifferentialGeometry, 102
  - ComputeDifferentials(), 505
  - dndu, 102
  - dndv, 102
  - dpdu, 102
  - dpdv, 102
  - dpdx, 505
  - dpdy, 505
  - dudx, 505
  - dudy, 505
  - dvdv, 505
  - nn, 102
  - p, 102
  - shape, 102
  - u, 102
  - v, 102
- DiffuseAreaLight, 625
  - area, 626
  - IsDeltaLight(), 627
  - L(), 626
  - Lemit, 626
  - Pdf(), 718
  - Power(), 627
  - Sample\_L(), 718
  - shapeSet, 626
- DiffusePRTIntegrator, 972
  - c\_in, 972
  - Li(), 972
  - lmax, 972
  - nSamples, 972
  - Preprocess(), 972
- DiffusionReflectance, 907
  - operator(), 908
- DipoleSubsurfaceIntegrator, 887
  - filename, 888
  - irradiancePoints, 897
  - Li(), 908
  - maxError, 888
  - maxSpecularDepth, 888
  - minSampleDist, 888
  - octree, 898
  - octreeArena, 898
  - octreeBounds, 898
  - Preprocess(), 897
- DirectLightingIntegrator, 742
  - bsdfSampleOffsets, 743
  - Li(), 744
  - lightNumOffset, 742
  - lightSampleOffsets, 743
  - RequestSamples(), 743
  - SAMPLE\_ALL\_UNIFORM, 742
  - SAMPLE\_ONE\_UNIFORM, 742
  - strategy, 742
- Disk, 129
  - Area(), 132
  - height, 130
  - innerRadius, 130
  - Intersect(), 131
  - ObjectBound(), 131
  - phiMax, 130
  - radius, 130
  - Sample(), 719
- DistantLight, 621
  - L, 622
  - lightDir, 622
  - Power(), 623
  - Sample\_L(), 714
- Distribution1D, 648
  - cdf, 648
  - count, 648
  - func, 648
  - funcInt, 648
  - SampleContinuous(), 649
  - SampleDiscrete(), 650
- Distribution2D, 672
  - pConditionalV, 672
  - Pdf(), 673
  - pMarginal, 673
  - SampleContinuous(), 673
- DotsTexture, 559
  - Evaluate(), 559
  - insideDot, 559
  - mapping, 559
  - outsideDot, 559
- EmissionIntegrator, 877
  - Li(), 880
  - RequestSamples(), 877
  - scatterSampleOffset, 877
  - stepSize, 877
  - tauSampleOffset, 877
  - Transmittance(), 879
- EnvironmentCamera, 318
  - GenerateRay(), 319
- ExponentialDensity, 595
  - a, 596
  - b, 596
  - Density(), 596
  - extent, 596
  - upDir, 596
- FBmTexture, 565
  - Evaluate(), 566
  - mapping, 566
  - octaves, 566
  - omega, 566
- Film, 403
  - AddSample(), 403
  - GetPixelExtent(), 404
  - GetSampleExtent(), 404
  - Splat(), 403
- UpdateDisplay(), 404
- WriteImage(), 404
- xResolution, 403
- yResolution, 403
- Filter, 393
  - Evaluate(), 394
  - invXWidth, 394
  - invYWidth, 394
  - xWidth, 394
  - yWidth, 394
- Fresnel, 436
  - Evaluate(), 436
- FresnelBlend, 460
  - distribution, 461
  - f(), 462
  - Pdf(), 701
  - Rd, 461
  - Rs, 461
  - Sample\_f(), 701
  - SchlickFresnel(), 462
- FresnelConductor, 436
  - eta, 436
  - Evaluate(), 437
  - k, 436
- FresnelDielectric, 437
  - eta\_i, 437
  - eta\_t, 437
  - Evaluate(), 437
- FresnelNoOp, 439
  - Evaluate(), 439
- GaussianFilter, 397
  - alpha, 397
  - Evaluate(), 398
  - expX, 397
  - expY, 397
- GeometricPrimitive, 188
  - areaLight, 188
  - CanIntersect(), 188
  - GetAreaLight(), 188
  - GetBSDF(), 189
  - GetBSSRDF(), 189
  - Intersect(), 188
  - IntersectP(), 188
  - material, 188
  - Refine(), 188
  - shape, 188
  - WorldBound(), 188
- GlossyPRTIntegrator, 980
  - B, 980
  - c\_in, 980
  - Kd, 980
  - Ks, 980
  - Li(), 980
  - lmax, 980
  - nSamples, 980
  - roughness, 980

- GonioPhotometricLight, 618
  - Intensity, 620
  - lightPos, 620
  - mipmap, 620
  - Power(), 621
- GraphicsState, 1059
  - areaLight, 1065
  - areaLightParams, 1065
  - CreateMaterial(), 1067
  - currentNamedMaterial, 1064
  - floatTextures, 1064
  - material, 1064
  - materialParams, 1064
  - namedMaterials, 1064
  - spectrumTextures, 1064
- GridAccel, 196
  - bounds, 198
  - CanIntersect(), 202
  - Intersect(), 202
  - IntersectP(), 208
  - invWidth, 199
  - nVoxels, 198
  - offset(), 201
  - posToVoxel(), 200
  - primitives, 198
  - rwMutex, 205
  - voxels, 199
  - voxelToPos(), 200
  - width, 199
  - WorldBound(), 202
- HaltonSampler, 364
  - currentSample, 364
  - GetMoreSamples(), 364
  - wantedSamples, 364
- HomogeneousVolumeDensity, 589
  - extent, 590
  - g, 590
  - IntersectP(), 590
  - le, 590
  - Lve(), 590
  - p(), 590
  - sigma\_a(), 591
  - sigma\_s(), 590
  - sigma\_t(), 590
  - sig\_a, 590
  - sig\_s, 590
  - tau(), 591
  - WorldBound(), 590
  - WorldToVolume, 590
- Hyperboloid, 134
- IdentityMapping3D, 519
  - Map(), 519
  - WorldToTexture, 519
- IGIIntegrator, 773
  - gatherSampleOffset, 775
  - gLimit, 774
  - maxSpecularDepth, 774
  - nGatherSamples, 774
  - nLightPaths, 773
  - nLightSets, 773
  - Preprocess(), 776
  - RequestSamples(), 774
  - rrThreshold, 774
  - virtualLights, 779
  - vlSetOffset, 775
- ImageFilm, 404
  - AddSample(), 408
  - cropWindow, 405
  - filename, 405
  - filter, 405
  - filterTable, 407
  - GetPixelExtent(), 412
  - GetSampleExtent(), 411
  - pixels, 406
  - Splat(), 411
  - WriteImage(), 412
  - xPixelCount, 406
  - xPixelStart, 406
  - yPixelCount, 406
  - yPixelStart, 406
- ImageTexture, 524
  - ClearCache(), 527
  - convertIn(), 526
  - convertOut(), 527
  - Evaluate(), 527
  - GetTexture(), 525
  - mapping, 524
  - mipmap, 524
  - textures, 525
- InfiniteAreaCube, 948
  - computeVis, 948
  - light, 948
  - operator(), 949
  - pEpsilon, 948
  - scene, 948
  - time, 948
- InfiniteAreaLight, 629
  - distribution, 727
  - Le(), 631
  - Pdf(), 729
  - Power(), 631
  - radianceMap, 631
  - Sample\_L(), 727
  - SHProject(), 944
- Integrator, 740
  - Preprocess(), 740
  - RequestSamples(), 740
- Intersection, 186
  - dg, 186
  - GetBSDF(), 484
  - GetBSSRDF(), 484
  - Le(), 625
  - ObjectToWorld, 186
  - primitive, 186
  - primitiveId, 186
  - rayEpsilon, 186
  - shapeId, 186
  - WorldToObject, 186
- IrradianceCacheIntegrator, 786
  - cosMaxSampleAngleDifference, 787
  - indirectLo(), 790
  - interpolateE(), 792
  - Li(), 789
  - maxIndirectDepth, 787
  - maxSamplePixelSpacing, 787
  - maxSpecularDepth, 787
  - minSamplePixelSpacing, 787
  - minWeight, 787
  - mutex, 787
  - nSamples, 787
  - octree, 788
  - Preprocess(), 788
  - RequestSamples(), 788
- IrradiancePoint, 898
  - area, 898
  - E, 898
  - n, 898
  - p, 898
  - rayEpsilon, 898
- IrradianceSample, 793
  - E, 793
  - maxDist, 793
  - n, 793
  - p, 793
  - wAvg, 793
- IrradProcess, 792
  - cosMaxSampleAngleDifference, 793
  - E, 793
  - GetAverageDirection(), 794
  - GetIrradiance(), 794
  - minWeight, 793
  - n, 793
  - p, 793
  - Successful(), 794
  - sumWt, 793
  - wAvg, 793
- IrregIsoProc, 466
  - nFound, 466
  - sumWeights, 466
  - v, 466
- IrregIsotropicBRDF, 464
  - f(), 466
  - isoBRDFData, 465
- IrregIsotropicBRDFSample, 465
  - p, 465
  - v, 465
- KdAccelNode, 229
  - aboveChild, 229

- AboveChild(), 231
- flags, 229
- initInterior(), 231
- initLeaf(), 230
- IsLeaf(), 231
- nPrimitives(), 231
- nPrims, 229
- onePrimitive, 229
- primitives, 229
- split, 229
- SplitAxis(), 231
- SplitPos(), 231
- KdNode, 1028
  - hasLeftChild, 1029
  - init(), 1028
  - initLeaf(), 1028
  - rightChild, 1029
  - splitAxis, 1029
  - splitPos, 1029
- KdSubsurfaceMaterial, 600
- KdToDo, 241
  - node, 241
  - tmax, 241
  - tmin, 241
- KdTree, 1029
  - Lookup(), 1032
  - nextFreeNode, 1029
  - nNodes, 1029
  - nodeData, 1029
  - nodes, 1029
  - privateLookup(), 1032
  - recursiveBuild(), 1030
- KdTreeAccel, 228
  - arena, 234
  - bounds, 232
  - buildTree(), 233
  - emptyBonus, 229
  - Intersect(), 240
  - IntersectP(), 245
  - isectCost, 229
  - maxDepth, 229
  - maxPrims, 229
  - nAllocedNodes, 232
  - nextFreeNode, 232
  - nodes, 232
  - primitives, 229
  - traversalCost, 229
- Lambertian, 447
  - f(), 447
  - R, 447
  - rho(), 447
- LanczosSincFilter, 400
  - Evaluate(), 402
  - Sinc1D(), 402
  - tau, 400
- LDSampler, 373
  - GetMoreSamples(), 374
  - GetSubSampler(), 374
  - MaximumSampleCount(), 377
  - nPixelSamples, 374
  - RoundSize(), 374
  - sampleBuf, 374
  - xPos, 374
  - yPos, 374
- Light, 606
  - IsDeltaLight(), 608
  - Le(), 631
  - LightToWorld, 606
  - nSamples, 606
  - Pdf(), 711
  - Power(), 608
  - Sample\_L(), 608
  - SHProject(), 943
  - WorldToLight, 606
- LightingSample, 838
  - bsdfSample, 838
  - lightNum, 838
  - lightSample, 838
- LightSample, 710
  - uComponent, 710
  - uPos, 710
- LightSampleOffsets, 710
  - componentOffset, 710
  - nSamples, 710
  - posOffset, 710
- LinearBVHNode, 222
  - axis, 222
  - bounds, 222
  - nPrimitives, 222
  - primitivesOffset, 222
  - secondChildOffset, 222
- LoopSubdiv, 151
  - beta(), 171
  - CanIntersect(), 160
  - faces, 152
  - gamma(), 171
  - nLevels, 152
  - Refine(), 161
  - vertices, 152
  - weightBoundary(), 166
  - weightOneRing(), 164
- MarbleTexture, 568
  - Evaluate(), 569
  - mapping, 568
  - octaves, 568
  - omega, 568
  - scale, 568
  - variation, 568
- Material, 483
  - Bump(), 495
  - GetBSDF(), 483
  - GetBSSRDF(), 484
- Matrix4x4, 1021
  - m, 1021
  - Mul(), 1021
- MatteMaterial, 484
  - bumpMap, 485
  - GetBSDF(), 485
  - Kd, 485
  - sigma, 485
- MeasuredMaterial, 489
  - bumpMap, 489
  - GetBSDF(), 489
  - nPhiD, 489
  - nThetaD, 489
  - nThetaH, 489
  - regularHalfangleData, 489
  - thetaPhiData, 489
- MemoryArena, 1015
  - Alloc(), 1016
  - availableBlocks, 1015
  - blockSize, 1015
  - curBlockPos, 1015
  - currentBlock, 1015
  - FreeAll(), 1017
  - usedBlocks, 1015
- MetropolisRenderer, 852
  - bidirectional, 853
  - camera, 853
  - directLighting, 853
  - largeStepsPerPixel, 853
  - Lbidir(), 849
  - Lpath(), 847
  - maxConsecutiveRejects, 853
  - maxDepth, 853
  - nBootstrap, 853
  - nDirectPixelSamples, 853
  - nPixelSamples, 853
  - PathL(), 845
  - Render(), 855
- Microfacet, 454
  - distribution, 454
  - f(), 455
  - fresnel, 454
  - G(), 455
  - Pdf(), 696
  - R, 454
  - Sample\_f(), 696
- MicrofacetDistribution, 454
  - D(), 454
  - Pdf(), 695
  - Sample\_f(), 695
- MIPMap, 530
  - doTrilinear, 530
  - EWA(), 541
  - height, 535
  - Height(), 535

- MIPMap (*continued*)
  - Levels(), 535
  - Lookup(), 540
  - Lookup(tri), 536
  - maxAnisotropy, 530
  - nLevels, 535
  - pyramid, 535
  - resampleWeights(), 532
  - Texel(), 535
  - triangle(), 539
  - weightLut, 544
  - WEIGHT\_LUT\_SIZE, 544
  - width, 535
  - Width(), 535
  - wrapMode, 530
- MitchellFilter, 398
  - B, 398
  - C, 398
  - Evaluate(), 399
  - MitchellID(), 400
- MixMaterial, 488
  - GetBSDF(), 488
  - m1, 488
  - m2, 488
  - scale, 488
- MixTexture, 521
  - amount, 521
  - Evaluate(), 522
  - tex1, 521
  - tex2, 521
- MLTSample, 839
  - cameraPathSamples, 839
  - cameraSample, 839
  - lightingSamples, 839
  - lightNumSample, 839
  - lightPathSamples, 839
  - lightRaySamples, 839
  - dx, 859
  - dy, 859
  - Run(), 857
- Mutex, 1038
  - Create(), 1038
  - Destroy(), 1038
- MutexLock, 1039
- NodeData, 1023
- Normal, 65
  - Normalize(), 65
- OctNode, 1023
  - children, 1023
  - data, 1023
- Octree, 1023
  - Add(), 1024
  - addPrivate(), 1024
  - bound, 1023
  - Lookup(), 1027
  - lookupPrivate(), 1027
  - maxDepth, 1023
  - root, 1023
- Options, 1051
  - imageFile, 1051
  - nCores, 1051
  - openWindow, 1051
  - quickRender, 1051
  - quiet, 1051
  - verbose, 1051
- OrenNayar, 449
  - A, 451
  - B, 451
  - f(), 451
  - R, 451
- OrthoCamera, 306
  - dxCamera, 307
  - dyCamera, 307
  - GenerateRay(), 309
  - GenerateRayDifferential(), 310
- Paraboloid, 134
- ParamSet, 1047
  - AddBlackbodySpectrum(), 1049
  - AddBool(), 1049
  - AddFloat(), 1049
  - AddInt(), 1049
  - AddNormal(), 1049
  - AddPoint(), 1049
  - AddRGBSpectrum(), 1049
  - AddSampledSpectrum(), 1049
  - AddSampledSpectrumFiles(), 1049
  - AddString(), 1049
  - AddTexture(), 1049
  - AddVector(), 1049
  - AddXYZSpectrum(), 1049
  - bools, 1047
  - Clear(), 1051
  - FindBool(), 1050
  - FindFloat(), 1050
  - FindInt(), 1050
  - FindNormal(), 1050
  - FindOneBool(), 1050
  - FindOneFloat(), 1050
  - FindOneInt(), 1050
  - FindOneNormal(), 1050
  - FindOnePoint(), 1050
  - FindOneSpectrum(), 1050
  - FindOneString(), 1050
  - FindOneVector(), 1050
  - FindPoint(), 1050
  - FindSpectrum(), 1050
  - FindString(), 1050
  - FindTexture(), 1050
  - FindVector(), 1050
  - floats, 1047
  - ints, 1047
  - normals, 1047
  - points, 1047
  - ReportUnused(), 1051
  - spectra, 1047
  - strings, 1047
  - textures, 1047
  - vectors, 1047
- ParamSetItem, 1048
  - data, 1048
  - lookedUp, 1048
  - name, 1048
  - nItems, 1048
- PathIntegrator, 766
  - bsdfSampleOffsets, 766
  - Li(), 767
  - lightNumOffset, 766
  - lightSampleOffsets, 766
  - maxDepth, 766
  - pathSampleOffsets, 766
  - RequestSamples(), 766
  - SAMPLE\_DEPTH, 766
- PathSample, 838
  - bsdfSample, 838
  - rrSample, 838
- PathVertex, 843
  - alpha, 843
  - bsdf, 843
  - isect, 843
  - nSpecularComponents, 843
  - specularBounce, 843
  - wNext, 843
  - wPrev, 843
- PbrtOptions, 1051
- PermutedHalton, 367
  - b, 368
  - dims, 368
  - permute, 368
  - Sample(), 368
- PerspectiveCamera, 310
  - dxCamera, 312
  - dyCamera, 312
  - GenerateRay(), 312
  - GenerateRayDifferential(), 312
- Photon, 805
  - alpha, 805
  - p, 805
  - wi, 805
- PhotonIntegrator, 802
  - bsdfGatherSampleOffsets, 803
  - causticMap, 813
  - cosGatherAngle, 803
  - finalGather, 803
  - gatherSamples, 803
  - indirectMap, 813
  - indirGatherSampleOffsets, 803
  - Li(), 817
  - maxDistSquared, 803

- maxPhotonDepth, 803
- maxSpecularDepth, 803
- nCausticPaths, 812
- nCausticPhotonsWanted, 803
- nIndirectPaths, 812
- nIndirectPhotonsWanted, 803
- nLookup, 803
- Preprocess(), 804
- radianceMap, 815
- RequestSamples(), 803
- PhotonProcess, 821
  - nFound, 821
  - nLookup, 821
  - operator(), 822
  - photons, 821
- PhotonShootingTask, 805
  - Run(), 806
- Pixel, 406
  - Lxyz, 406
  - splatXYZ, 406
  - weightSum, 406
- PlanarMapping2D, 518
  - ds, 518
  - dt, 518
  - map, 518
  - vs, 518
  - vt, 518
- PlasticMaterial, 487
  - bumpMap, 487
  - GetBSDF(), 487
  - Kd, 487
  - Ks, 487
  - roughness, 487
- Point, 63
- PointLight, 610
  - Intensity, 611
  - IsDeltaLight(), 611
  - lightPos, 611
  - pdf(), 712
  - Power(), 611
  - Sample\_L(), 611
  - SHProject(), 942
- PoissonCheck, 895
- Primitive, 185
  - CanIntersect(), 186
  - FullyRefine(), 186
  - GetAreaLight(), 187
  - GetBSDF(), 187
  - GetBSSRDF(), 187
  - Intersect(), 186
  - IntersectP(), 186
  - nextprimitiveId, 185
  - primitiveId, 185
  - Refine(), 186
  - WorldBound(), 185
- ProgressReporter, 1006
  - Done(), 1006
  - Update(), 1006
- ProjectionLight, 614
  - cosTotalWidth, 617
  - hither, 617
  - Intensity, 616
  - lightPos, 616
  - lightProjection, 617
  - Power(), 618
  - Projection(), 617
  - projectionMap, 616
  - Sample\_L(), 617
  - screenX0, 617
  - screenX1, 617
  - screenY0, 617
  - screenY1, 617
  - yon, 617
- ProjectiveCamera, 305
  - CameraToScreen, 305
  - focalDistance, 314
  - lensRadius, 314
  - RasterToCamera, 305
  - RasterToScreen, 306
  - ScreenToRaster, 306
- Quaternion, 92
  - Dot(), 93
  - Normalize(), 93
  - ToTransform(), 94
  - v, 93
  - w, 93
- RadiancePhoton, 815
  - Lo, 815
  - n, 815
  - p, 815
- RadiancePhotonProcess, 825
  - n, 825
  - operator(), 825
  - photon, 825
- Ray, 66
  - d, 67
  - depth, 67
  - maxt, 67
  - mint, 67
  - o, 67
  - operator(), 68
  - time, 67
- RayDifferential, 69
  - hasDifferentials, 69
  - rxDirection, 69
  - rxOrigin, 69
  - ryDirection, 69
  - ryOrigin, 69
  - ScaleDifferentials(), 70
- Reference, 1011
  - GetPtr(), 1012
  - ptr, 1011
- ReferenceCounted, 1010
  - nReferences, 1010
- RegularHalfangleBRDF, 467
  - brdf, 468
  - f(), 469
  - nPhiD, 468
  - nThetaD, 468
  - nThetaH, 468
- Renderer, 24
  - Li(), 25
  - Render(), 24
  - Transmittance(), 25
- RenderOptions, 1056
  - CameraName, 1058
  - CameraParams, 1058
  - CameraToWorld, 1058
  - currentInstance, 1069
  - FilterName, 1057
  - FilterParams, 1057
  - instances, 1069
  - lights, 1065
  - MakeRenderer(), 1072
  - MakeScene(), 1072
  - primitives, 1068
  - transformEndTime, 1057
  - transformStartTime, 1057
- ResampleWeight, 532
  - firstTexel, 532
  - weight, 532
- RGB2SpectLambda, 276
- RGBIllum2SpectBlue, 276
- RGBIllum2SpectCyan, 276
- RGBIllum2SpectGreen, 276
- RGBIllum2SpectMagenta, 276
- RGBIllum2SpectRed, 276
- RGBIllum2SpectWhite, 276
- RGBIllum2SpectYellow, 276
- RGBRef12SpectBlue, 276
- RGBRef12SpectCyan, 276
- RGBRef12SpectGreen, 276
- RGBRef12SpectMagenta, 276
- RGBRef12SpectRed, 276
- RGBRef12SpectWhite, 276
- RGBRef12SpectYellow, 276
- RGBSpectrum, 279
  - FromRGB(), 279
  - FromSampled(), 280
  - FromXYZ(), 280
  - ToRGB(), 280
  - ToRGBSpectrum(), 280
  - ToXYZ(), 280
  - y(), 280
- RandomFloat(), 1003
- RandomUInt(), 1003
- Seed(), 1003

- RWMutex, 1039
  - Create(), 1039
  - Destroy(), 1039
- RWMutexLock, 1039
  - DowngradeToRead(), 1039
  - UpgradeToWrite(), 1039
- RWMutexLockType, 1039
- Sample, 343
  - Add1D(), 344
  - Add2D(), 344
  - AllocateSampleMemory(), 345
  - Duplicate(), 346
  - n1D, 344
  - n2D, 344
  - oneD, 344
  - twoD, 344
- SampledSpectrum, 266
  - FromRGB(), 277
  - FromSampled(), 267
  - FromXYZ(), 278
  - Init(), 271
  - rgbIllum2SpectBlue, 277
  - rgbIllum2SpectCyan, 277
  - rgbIllum2SpectGreen, 277
  - rgbIllum2SpectMagenta, 277
  - rgbIllum2SpectRed, 277
  - rgbIllum2SpectWhite, 277
  - rgbIllum2SpectYellow, 277
  - rgbRef12SpectBlue, 277
  - rgbRef12SpectCyan, 277
  - rgbRef12SpectGreen, 277
  - rgbRef12SpectMagenta, 277
  - rgbRef12SpectRed, 277
  - rgbRef12SpectWhite, 277
  - rgbRef12SpectYellow, 277
  - ToRGB(), 275
  - ToRGBSpectrum(), 275
  - ToXYZ(), 272
  - X, 271
  - Y, 271
  - yint, 271
  - Z, 271
- Sampler, 340
  - ComputeSubWindow(), 341
  - GetMoreSamples(), 340
  - GetSubSampler(), 341
  - MaximumSampleCount(), 341
  - ReportResults(), 341
  - RoundSize(), 344
  - samplesPerPixel, 340
  - shutterClose, 340
  - shutterOpen, 340
  - xPixelEnd, 340
  - xPixelStart, 340
  - yPixelEnd, 340
  - yPixelStart, 340
- SamplerRenderer, 25
  - camera, 26
  - Li(), 34
  - Render(), 27
  - sampler, 25
  - surfaceIntegrator, 26
  - Transmittance(), 35
  - volumeIntegrator, 26
- SamplerRendererTask, 29
  - camera, 30
  - mainSampler, 30
  - origSample, 30
  - renderer, 30
  - Run(), 30
  - scene, 30
  - taskCount, 30
  - taskNum, 30
- ScaledBxDF, 431
  - bxdf, 431
  - f(), 432
  - s, 431
- ScaleTexture, 520
  - Evaluate(), 521
  - tex1, 520
  - tex2, 520
- Scene, 22
  - aggregate, 23
  - bound, 24
  - Intersect(), 23
  - IntersectP(), 24
  - lights, 23
  - volumeRegion, 23
  - WorldBound(), 24
- SDEdge, 155
  - f, 155
  - f0edgeNum, 155
  - v, 155
- SDFace, 153
  - children, 153
  - f, 153
  - nextFace(), 159
  - nextVert(), 159
  - otherVert(), 168
  - prevFace(), 159
  - prevVert(), 159
  - v, 153
  - vnum(), 159
- SDVertex, 152
  - boundary, 152
  - child, 152
  - oneRing(), 164
  - P, 152
  - regular, 152
  - startFace, 152
  - valence(), 158
- Shape, 108
  - Area(), 113
  - CanIntersect(), 110
  - GetShadingGeometry(), 113
  - Intersect(), 111
  - IntersectP(), 111
  - nextshapeId, 109
  - ObjectBound(), 109
  - ObjectToWorld, 108
  - Pdf(), 717
  - Refine(), 110
  - ReverseOrientation, 108
  - Sample(), 716
  - shapeId, 109
  - TransformSwapsHandedness, 108
  - WorldBound(), 110
  - WorldToObject, 108
- ShapeSet, 626
  - areaDistribution, 723
  - areas, 723
  - Pdf(), 724
  - Sample(), 723
  - shapes, 626
  - sumArea, 723
- SingleScatteringIntegrator, 882
  - Li(), 882
- Spectrum, 263
  - Clamp(), 265
  - Exp(), 265
  - FromRGB(), 277
  - HasNaNs(), 266
  - IsBlack(), 265
  - Lerp(), 265
  - Pow(), 265
  - Sqrt(), 265
  - ToRGB(), 275
  - ToXYZ(), 272
  - y(), 273
- SpectrumType, 277
- SpecularReflection, 440
  - f(), 441
  - fresnel, 440
  - Pdf(), 703
  - R, 440
  - Sample\_f(), 441
- SpecularTransmission, 444
  - etai, 444
  - etat, 444
  - f(), 444
  - fresnel, 444
  - Pdf(), 703
  - Sample\_f(), 444
  - T, 444
- Sphere, 115
  - Area(), 124
  - Bound, 116



- Intersect(), 117
- IntersectP(), 123
- Pdf(), 722
- phiMax, 116
- radius, 116
- Sample(), 720
- thetaMax, 116
- thetaMin, 116
- zmax, 116
- zmin, 116
- SphericalMapping2D, 516
  - Map(), 516
  - sphere(), 516
  - WorldToTexture, 516
- SpotLight, 612
  - cosFalloffStart, 613
  - cosTotalWidth, 613
  - Falloff(), 614
  - Intensity, 613
  - lightPos, 613
  - Power(), 614
  - Sample\_L(), 713
- StratifiedSampler, 349
  - GetMoreSamples(), 351
  - GetSubSampler(), 350
  - jitterSamples, 349
  - MaximumSampleCount(), 359
  - RoundSize(), 349
  - sampleBuf, 349
  - xPixelSamples, 349
  - xPos, 349
  - yPixelSamples, 349
  - yPos, 349
- SubsurfaceMaterial, 599
  - bumpMap, 599
  - eta, 599
  - GetBSDF(), 599
  - GetBSSRDF(), 600
  - Kr, 599
  - scale, 599
  - sigma\_a, 599
  - sigma\_prime\_s, 599
- SubsurfaceOctreeNode, 898
  - children, 899
  - E, 899
  - InitHierarchy(), 901
  - Insert(), 899
  - ips, 899
  - isLeaf, 899
  - Mo(), 911
  - p, 899
  - sumArea, 899
- SurfaceIntegrator, 740
  - Li(), 741
- SurfacePoint, 890
  - area, 891
  - n, 891
  - p, 891
  - rayEpsilon, 891
- SurfacePointsRenderer, 888
  - filename, 889
  - minDist, 889
  - pCamera, 889
  - points, 890
  - Render(), 890
  - time, 889
  - Run(), 892
- Task, 1041
  - Run(), 1041
- TexInfo, 525
- Texture, 519
  - Evaluate(), 520
- TextureMapping2D, 514
  - Map(), 514
- TextureMapping3D, 519
  - Map(), 519
- TextureParams, 1061
  - FindBool(), 1062
  - FindFloat(), 1062
  - FindNormal(), 1062
  - FindPoint(), 1062
  - FindSpectrum(), 1062
  - FindString(), 1062
  - FindVector(), 1062
  - floatTextures, 1061
  - geomParams, 1061
  - GetSpectrumTexture(), 1062
  - materialParams, 1061
  - ReportUnused(), 1062
  - spectrumTextures, 1061
- Transform, 76
  - HasScale(), 80
  - Inverse(), 77
  - IsIdentity(), 77
  - m, 76
  - mInv, 76
  - operator(), 86
  - SwapsHandedness(), 89
- TransformCache, 1066
  - Lookup(), 1066
- TransformedPrimitive, 190
  - GetAreaLight(), 191
  - GetBSDF(), 191
  - GetBSSRDF(), 191
  - Intersect(), 190
  - IntersectP(), 191
  - primitive, 190
  - WorldBound(), 191
  - WorldToPrimitive, 190
- TransformSet, 1054
  - Inverse(), 1054
  - IsAnimated(), 1064
  - t, 1054
- Triangle, 139
  - Area(), 145
  - GetShadingGeometry(), 145
  - GetUVs(), 144
  - Intersect(), 141
  - mesh, 139
  - ObjectBound(), 139
  - Sample(), 719
  - v, 139
  - WorldBound(), 140
- TriangleFilter, 396
  - Evaluate(), 396
- TriangleMesh, 135
  - alphaTexture, 137
  - CanIntersect(), 138
  - n, 137
  - ntris, 137
  - nverts, 137
  - ObjectBound(), 138
  - p, 137
  - Refine(), 139
  - s, 137
  - uvs, 137
  - vertexIndex, 137
  - WorldBound(), 138
- UseRadianceProbes, 965
  - bbox, 965
  - c\_in, 965
  - includeDirectInProbes, 965
  - includeIndirectInProbes, 965
  - Li(), 965
  - lmax, 965
  - nProbes, 965
- UVMapping2D, 515
  - du, 515
  - dv, 515
  - Map(), 515
  - su, 515
  - sv, 515
- UVTexture, 545
  - mapping, 545
- Vector, 57
  - HasNaNs(), 58
  - Length(), 62
  - LengthSquared(), 62
  - Normalize(), 63
- VirtualLight, 779
  - n, 779
  - p, 779
  - pathContrib, 779
  - rayEpsilon, 779
- VisibilityTester, 608
  - r, 608
  - SetRay(), 609
  - SetSegment(), 609

VisibilityTester (*continued*)

Transmittance(), 609

Unoccluded(), 609

## VolumeGridDensity, 593

D(), 594

density, 593

Density(), 593

extent, 593

nx, 593

ny, 593

nz, 593

## VolumeIntegrator, 876

Li(), 876

Transmittance(), 876

## VolumeRegion, 587

IntersectP(), 588

Lve(), 588

p(), 588

sigma\_a(), 588

sigma\_s(), 588

sigma\_t(), 588

tau(), 588

WorldBound(), 587

## Voxel, 202

AddPrimitive(), 202

allCanIntersect, 202

Intersect(), 206

primitives, 202

## WhittedIntegrator, 42

Li(), 42

maxDepth, 42

## WindyTexture, 567

Evaluate(), 567

mapping, 567

## WrinkledTexture, 566