

Polarization Ray Trace Data

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Title:

Date : 29.10.2013

Lens units : Millimeters.
Wavelength : 0.550000000 μm
Normalized X Field Coord (Hx) : 0.000000000
Normalized Y Field Coord (Hy) : 1.000000000
Normalized X Pupil Coord (Px) : 0.000000000
Normalized Y Pupil Coord (Py) : 0.000000000

Input Polarization:
X-Field : 1.000000
Y-Field : 2.000000
X-Phase : 10.000000
Y-Phase : 20.000000

All coordinates and cosines are in global coordinates relative to surface 2.

Tracing ray to surface 1:

Path length through air (tau): 1.0049876E+001
Internal absorption per mm (alpha): 0.0000000E+000
Internal Transmittance of ray (IT): 1.000000000000
Propagation Phase Factors (pc,ps): -0.999974825850 0.007095608894
Coordinates on surface (x,y,z): 0.0000000E+000 0.0000000E+000 -5.0000000E+000
Direction cosines of incident ray (l1,m1,n1): 0.000000000000 -0.099503719021 0.995037190210
Cosine of angle of incident ray : 0.995037190210 (5.710593 deg)
Cosine of angle of exit ray : 0.998761609432 (2.851749 deg)
Direction cosines of exit ray (l2,m2,n2): 0.000000000000 -0.049751859510 0.998761609432
Direction cosines of normal (ln,mn,nn): 0.000000000000 0.000000000000 -1.000000000000
Direction cosines of S vector (sx,sy,sz): -1.000000000000 -0.000000000000 -0.000000000000
Direction cosines of P vector (px,py,pz): 0.000000000000 -0.995037190210 -0.099503719021
E field before coating (xyz) (Exr,Eyr,Ezr): -0.440959358477 -0.838454262695 -0.083845426269
(Exi,Eyi,Ezi): -0.074530826991 -0.298452102170 -0.029845210217
E field before coating (s&p) (Esr,Epr): 0.440959358477 0.842636105408
(Esi,Epi): 0.074530826991 0.299940650567
Ray intensity before coating (I1): 1.000000000000
Coating : None defined, assuming bare glass.
Intensity Reflection coefficients (Rs,Rp): 0.112220139794 0.110006218055
Intensity Transmission coefficients (Ts,Tp): 0.887779860206 0.889993781945
Intensity Absorption coefficients (As,Ap): 0.000000000000 0.000000000000
Diatenuation (D): 0.001245333875
Field Amplitude Reflection S pol (rsr,rsi): -0.334992745882 0.000000000000
Field Amplitude Reflection P pol (rpr,rpi): -0.331671852973 0.000000000000
Field Amplitude Transmission S pol (tsr,tsi): 0.942220706738 -0.000000000000
Field Amplitude Transmission P pol (tpr,tpi): 0.943394817637 -0.000000000000
Field Reflection Phase (Prs,Prp): 3.141592653590 3.141592653590
Field Reflection Retardance (P-S) (Sr): 0.000000000000 (0.000000 deg)
Field Reflection Retardance (P-S+pi) (Sr): 3.141592653590 (180.000000 deg)
Field Transmission Phase (Pts,Ptp): -0.000000000000 -0.000000000000
Field Transmission Retardance (P-S) (St): 0.000000000000 (0.000000 deg)
Field Transmission Retardance (P-S+pi) (St): 3.141592653590 (180.000000 deg)
Ray Amplitude Reflection S pol (rsr,rsi): -0.334992745882 0.000000000000
Ray Amplitude Reflection P pol (rpr,rpi): -0.331671852973 0.000000000000
Ray Amplitude Transmission S pol (tsr,tsi): 0.942220706738 0.000000000000
Ray Amplitude Transmission P pol (tpr,tpi): 0.943394817637 0.000000000000
Ray Reflection Phase (Prs,Prp): 3.141592653590 3.141592653590
Ray Reflection Retardance (P-S) (Sr): 0.000000000000 (0.000000 deg)
Ray Reflection Retardance (P-S+pi) (Sr): 3.141592653590 (180.000000 deg)
Ray Transmission Phase (Pts,Ptp): 0.000000000000 0.000000000000
Ray Transmission Retardance (P-S) (St): 0.000000000000 (0.000000 deg)
Ray Transmission Retardance (P-S+pi) (St): 3.141592653590 (180.000000 deg)
Electric field after coating (Esr,Epr): 0.415481038387 0.794938534996
(Esi,Epi): 0.070224488481 0.282962455344
Ray intensity after coating (I2): 0.889550997597
Direction cosines of new S vector (sx,sy,sz): -1.000000000000 -0.000000000000 -0.000000000000
Direction cosines of new P vector (px,py,pz): 0.000000000000 -0.998761609432 -0.049751859510
E field after (Exr,Eyr,Ezr): -0.415481038387 -0.793954090612 -0.039549670313
(Exi,Eyi,Ezi): -0.070224488481 -0.282612037308 -0.014077908325
X, Y, and Z direction Amplitude (Ax, Ay, Az): 0.421373910015 0.842753025288 0.041980518394
X, Y, and Z direction Phase (Px, Py, Pz): -2.974155396827 -2.799622471628 -2.799622471628
Phase difference between X and Y (Pxy): -0.174532925199 (-10.000000 deg)
Major, Minor semi axis XY ellipse (EM, Em): 0.939938605796 0.065605266610
Angle of XY polarization ellipse (Ap): 1.110833071096 (63.646047 deg)
Ray intensity out (I2): 0.889550997597

Tracing ray to surface 2:

Path length through 2.0000, 0.0000 (tau): 5.0046477E+000
Internal absorption per mm (alpha): 0.0000000E+000
Internal Transmittance of ray (IT): 1.000000000000
Propagation Phase Factors (pc,ps): -0.193182243275 0.981162892125
Coordinates on surface (x,y,z): 0.0000000E+000 -2.4899053E-001 -1.5499672E-003
Direction cosines of incident ray (l1,m1,n1): 0.000000000000 -0.049751859510 0.998761609432
Cosine of angle of incident ray : 0.999303594143 (2.138425 deg)
Cosine of angle of exit ray : 0.997211458553 (4.279836 deg)
Direction cosines of exit ray (l2,m2,n2): 0.000000000000 -0.087036816280 0.996205095656
Direction cosines of normal (ln,mn,nn): 0.000000000000 0.012449526566 -0.999922501641
Direction cosines of S vector (sx,sy,sz): -1.000000000000 0.000000000000 0.000000000000

Direction cosines of P vector (px,py,pz): -0.000000000000 -0.998761609432 -0.049751859510
E field before coating (xyz) (Exr,Eyr,Ezr): 0.149165221250 0.430666276156 0.021453015279
(Exi,Eyi,Ezi): -0.394088453029 -0.724402664416 -0.036085066996
E field before coating (s&p) (Esr,Epr): -0.149165221250 -0.431200270504
(Esi,Epi): 0.394088453029 0.725300870173
Ray intensity before coating (I1): 0.889550997597
Coating : TEST_COATING
Intensity Reflection coefficients (Rs,Rp): 0.111703676205 0.110462042965
Intensity Transmission coefficients (Ts,Tp): 0.888296323795 0.889537957035
Intensity Absorption coefficients (As,Ap): 0.000000000000 0.000000000000
Diatenuation (D): 0.000698396501
Field Amplitude Reflection S pol (rsr,rsi): 0.334201482221 -0.003611853546
Field Amplitude Reflection P pol (rpr,rpi): 0.332338961100 -0.003585791375
Field Amplitude Transmission S pol (tsr,tsi): 0.942401050331 -0.013288496172
Field Amplitude Transmission P pol (tpr,tpi): 0.943059331752 -0.013306157658
Field Reflection Phase (Prs,Prp): -0.010806992567 -0.010789141987
Field Reflection Retardance (P-S) (Sr): 0.000017850580 (0.001023 deg)
Field Reflection Retardance (P-S+pi) (Sr): -3.141574803009 (-179.998977 deg)
Field Transmission Phase (Pts,Ptp): -0.014099746131 -0.014108629563
Field Transmission Retardance (P-S) (St): -0.000008883433 (-0.000509 deg)
Field Transmission Retardance (P-S+pi) (St): 3.141583770157 (179.999491 deg)
Ray Amplitude Reflection S pol (rsr,rsi): 0.334197026613 0.004002949931
Ray Amplitude Reflection P pol (rpr,rpi): 0.332334395152 0.003986572892
Ray Amplitude Transmission S pol (tsr,tsi): 0.942491315359 -0.002538556354
Ray Amplitude Transmission P pol (tpr,tpi): 0.943149755405 -0.002548708300
Ray Reflection Phase (Prs,Prp): 0.011977241559 0.011995092139
Ray Reflection Retardance (P-S) (Sr): 0.000017850580 (0.001023 deg)
Ray Reflection Retardance (P-S+pi) (Sr): -3.141574803009 (-179.998977 deg)
Ray Transmission Phase (Pts,Ptp): -0.002693446798 -0.002702330231
Ray Transmission Retardance (P-S) (St): -0.000008883433 (-0.000509 deg)
Ray Transmission Retardance (P-S+pi) (St): 3.141583770157 (179.999491 deg)
Electric field after coating (Esr,Epr): -0.139586509835 -0.404837849308
(Esi,Epi): 0.371803608783 0.685166342008
Ray intensity after coating (I2): 0.791068917685
Direction cosines of new S vector (sx,sy,sz): -1.000000000000 0.000000000000 0.000000000000
Direction cosines of new P vector (px,py,pz): -0.000000000000 -0.996205095656 -0.087036816280
E field after (Exr,Eyr,Ezr): 0.139586509835 0.403301528396 0.035235797514
(Exi,Eyi,Ezi): -0.371803608783 -0.682566201280 -0.059634697031
X, Y, and Z direction Amplitude (Ax, Ay, Az): 0.397142691274 0.792810659575 0.069266575752
X, Y, and Z direction Phase (Px, Py, Pz): -1.211648061144 -1.037124019377 -1.037124019377
Phase difference between X and Y (Pxy): -0.174524041767 (-9.999491 deg)
Major, Minor semi axis XY ellipse (EM, Em): 0.884562595933 0.061806739477
Angle of XY polarization ellipse (Ap): 1.110083311302 (63.603089 deg)
Ray intensity out (I2): 0.791068917685

Tracing ray to surface 3:

Path length through air (tau): 3.4133520E+001
Internal absorption per mm (alpha): 0.0000000E+000
Internal Transmittance of ray (IT): 1.000000000000
Propagation Phase Factors (pc,ps): 0.940782950870 0.339009497438
Coordinates on surface (x,y,z): 0.0000000E+000 -3.2198634E+000 3.4002436E+001
Direction cosines of incident ray (l1,m1,n1): 0.000000000000 -0.087036816280 0.996205095656
Cosine of angle of incident ray : 0.996205095656 (4.993160 deg)
Cosine of angle of exit ray : 0.996205095656 (4.993160 deg)
Direction cosines of exit ray (l2,m2,n2): 0.000000000000 -0.087036816280 0.996205095656
Direction cosines of normal (ln,mn,nn): 0.000000000000 0.000000000000 -1.000000000000
Direction cosines of S vector (sx,sy,sz): -1.000000000000 -0.000000000000 -0.000000000000
Direction cosines of P vector (px,py,pz): 0.000000000000 -0.996205095656 -0.087036816280
E field before coating (xyz) (Exr,Eyr,Ezr): 0.257365563183 0.610815626838 0.053365966231
(Exi,Eyi,Ezi): -0.302465343667 -0.505423596547 -0.044158036240
E field before coating (s&p) (Esr,Epr): -0.257365563183 -0.613142443761
(Esi,Epi): 0.302465343667 0.507348937233
Ray intensity before coating (I1): 0.791068917685
Coating : None defined, assuming bare glass.
Intensity Reflection coefficients (Rs,Rp): 0.000000000000 0.000000000000
Intensity Transmission coefficients (Ts,Tp): 1.000000000000 1.000000000000
Intensity Absorption coefficients (As,Ap): 0.000000000000 0.000000000000
Diatenuation (D): 0.000000000000
Field Amplitude Reflection S pol (rsr,rsi): 0.000000000000 0.000000000000
Field Amplitude Reflection P pol (rpr,rpi): 0.000000000000 0.000000000000
Field Amplitude Transmission S pol (tsr,tsi): 1.000000000000 -0.000000000000
Field Amplitude Transmission P pol (tpr,tpi): 1.000000000000 -0.000000000000
Field Reflection Phase (Prs,Prp): 0.000000000000 0.000000000000
Field Reflection Retardance (P-S) (Sr): 0.000000000000 (0.000000 deg)
Field Reflection Retardance (P-S+pi) (Sr): 3.141592653590 (180.000000 deg)
Field Transmission Phase (Pts,Ptp): -0.000000000000 -0.000000000000
Field Transmission Retardance (P-S) (St): 0.000000000000 (0.000000 deg)
Field Transmission Retardance (P-S+pi) (St): 3.141592653590 (180.000000 deg)
Ray Amplitude Reflection S pol (rsr,rsi): 0.000000000000 0.000000000000
Ray Amplitude Reflection P pol (rpr,rpi): 0.000000000000 0.000000000000
Ray Amplitude Transmission S pol (tsr,tsi): 1.000000000000 0.000000000000
Ray Amplitude Transmission P pol (tpr,tpi): 1.000000000000 0.000000000000
Ray Reflection Phase (Prs,Prp): 0.000000000000 0.000000000000
Ray Reflection Retardance (P-S) (Sr): 0.000000000000 (0.000000 deg)
Ray Reflection Retardance (P-S+pi) (Sr): 3.141592653590 (180.000000 deg)
Ray Transmission Phase (Pts,Ptp): 0.000000000000 0.000000000000
Ray Transmission Retardance (P-S) (St): 0.000000000000 (0.000000 deg)
Ray Transmission Retardance (P-S+pi) (St): 3.141592653590 (180.000000 deg)
Electric field after coating (Esr,Epr): -0.257365563183 -0.613142443761
(Esi,Epi): 0.302465343667 0.507348937233
Ray intensity after coating (I2): 0.791068917685
Direction cosines of new S vector (sx,sy,sz): -1.000000000000 -0.000000000000 -0.000000000000
Direction cosines of new P vector (px,py,pz): 0.000000000000 -0.996205095656 -0.087036816280
E field after (Exr,Eyr,Ezr): 0.257365563183 0.610815626838 0.053365966231

(Exi,Eyi,Ezi): -0.302465343667 -0.505423596547 -0.044158036240
X, Y, and Z direction Amplitude (Ax, Ay, Az): 0.397142691274 0.792810659575 0.069266575752
X, Y, and Z direction Phase (Px, Py, Pz): -0.865784212792 -0.691260171026 -0.691260171026
Phase difference between X and Y (Pxy): -0.174524041767 (-9.999491 deg)
Major, Minor semi axis XY ellipse (EM, Em): 0.884562595933 0.061806739477
Angle of XY polarization ellipse (Ap): 1.110083311302 (63.603089 deg)
Ray intensity out (I2): 0.791068917685
SUMMARY

Total transmitted intensity: 0.791068917685