UNIVERSITÄT DES SAARLANDES
Lehrstuhl für Computer Graphik
Prof. Dr. Philipp Slusallek,
Prof. Dr. Hab. Inż. Karol Myszkowski (MPII), and
Dr. Gurprit Singh (MPII)
Assistants: Julius Kilger and
Pascal Grittmann

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Realistic Image Synthesis (SS 2019)
Assignment 2

Submission deadline for the exercises: May 17, 2019

2.1 Radiometric Quantities: Power (25 points)

You are given a sphere with radius R and two infinite planes, parallel to each other, offset by $D_1, D_2 > R$ units from the center of the sphere. The two planes face a different half of the sphere. The surface of the sphere is assumed to be a diffuse emitter with radiosity B. Calculate the total power incident on each plane. Give a reason for your answer.

2.2 Radiosity: Differential Form Factors on a Cube (25 points)

In this exercise we look at the computation of form factors between two differential areas (i.e. points) δA_1 and δA_2.

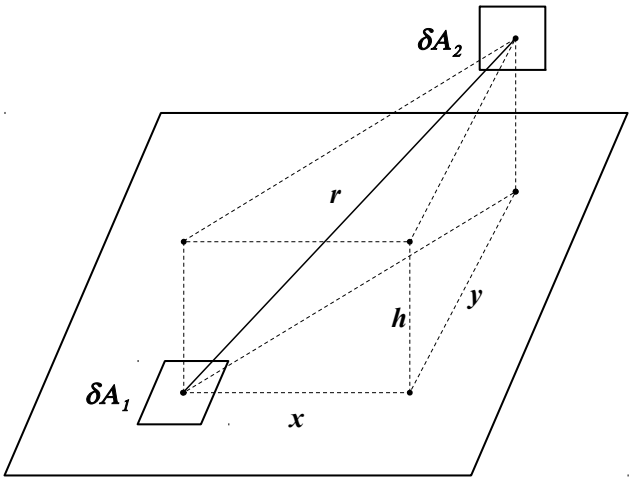

Figure 1: Two differential areas δA_1 and δA_2.

Given h, x and y, compute $F_{\delta A_1, \delta A_2}$ for the points δA_1 and δA_2 in Figure 2, assuming that the points belong to patches that lie in orthogonal planes.

Procedure of Submitting

Write your solutions and submit them on May 17, 2019, before the lecture. You can also e-mail the solution as a pdf to grittmann@cg.uni-saarland.de or drop them off at the chair in person. Submissions during the lecture (12:15-13:45) receive a penalty factor of 0.8, later submissions will not be accepted.