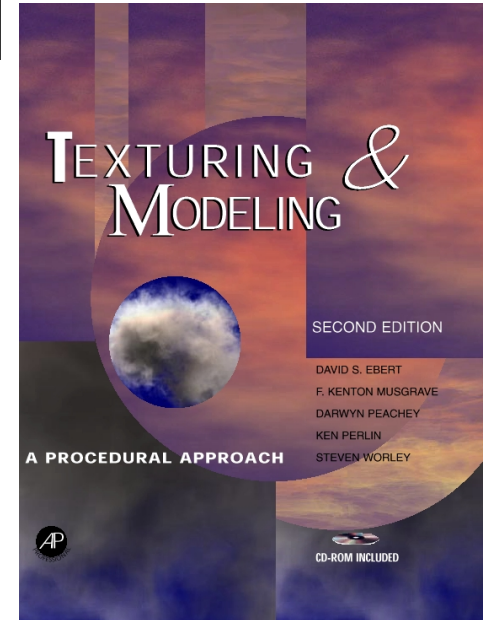
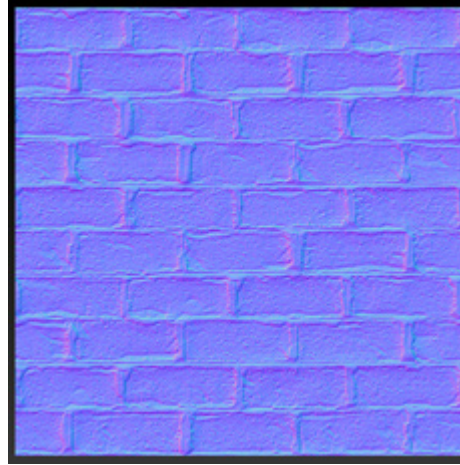
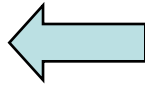
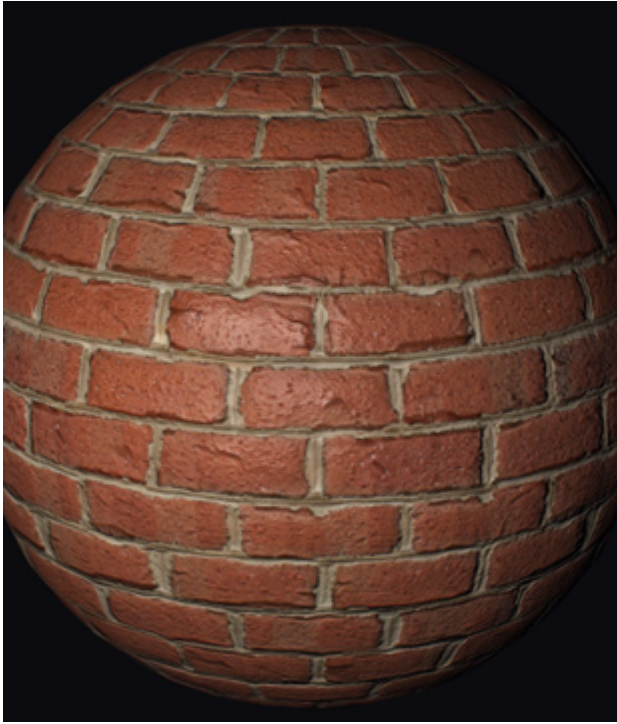
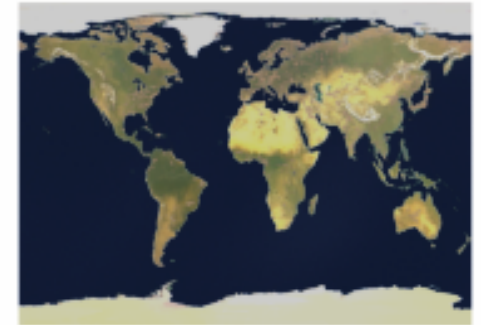
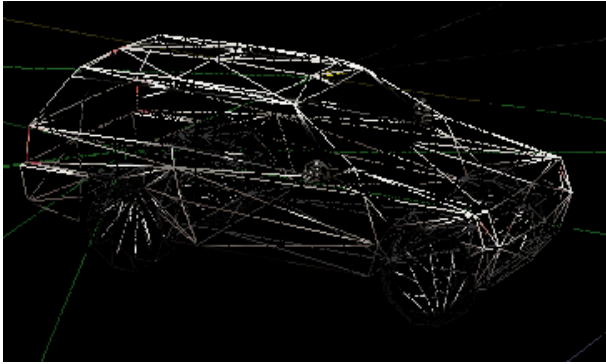


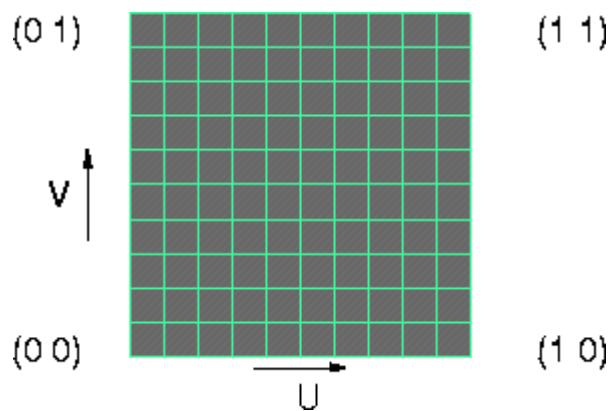
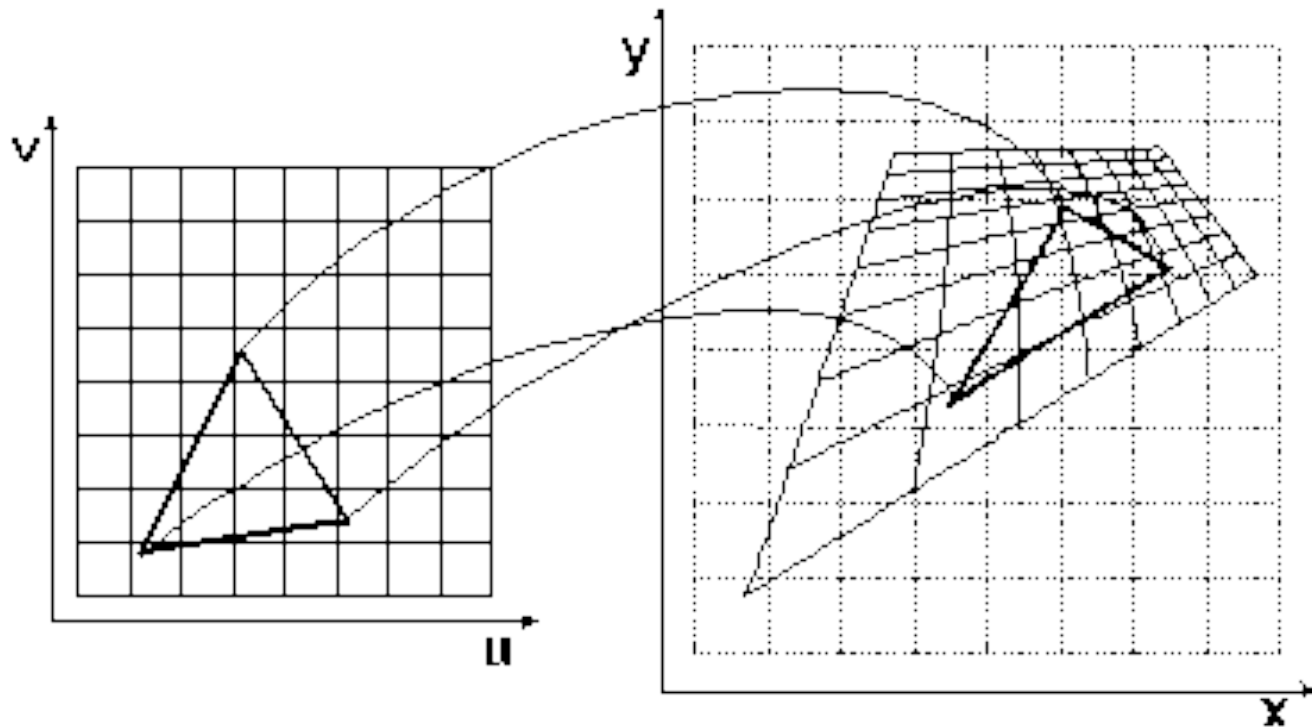
# Трассировка лучей. Текстурирование и шум.

URL: <http://www.school30.spb.ru/cgsg/cgc/>

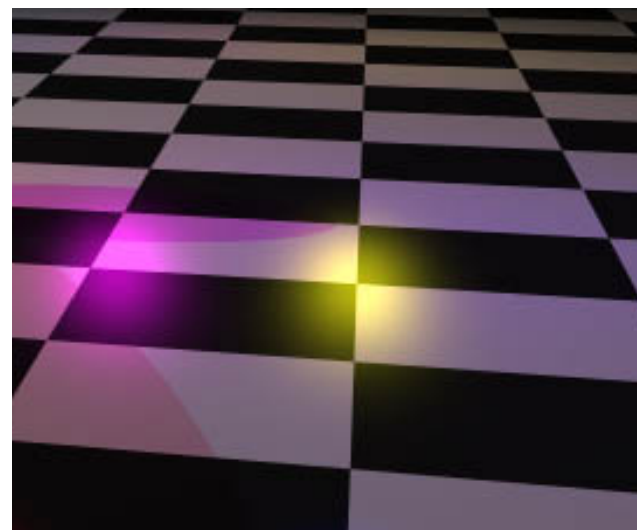
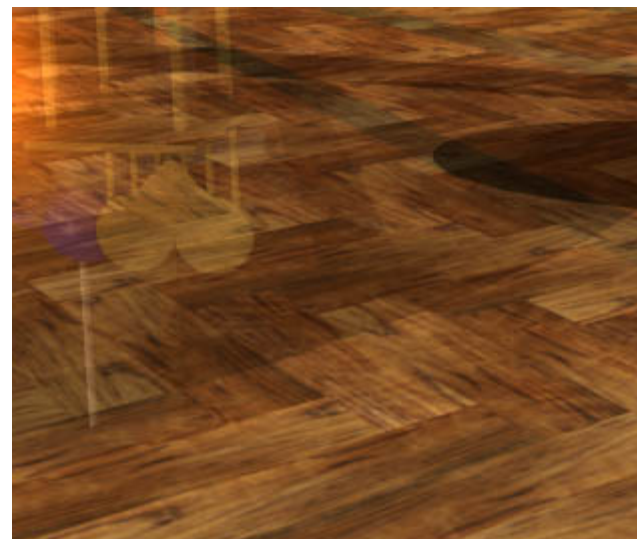
E-mail: [CGSG@yandex.ru](mailto:CGSG@yandex.ru)





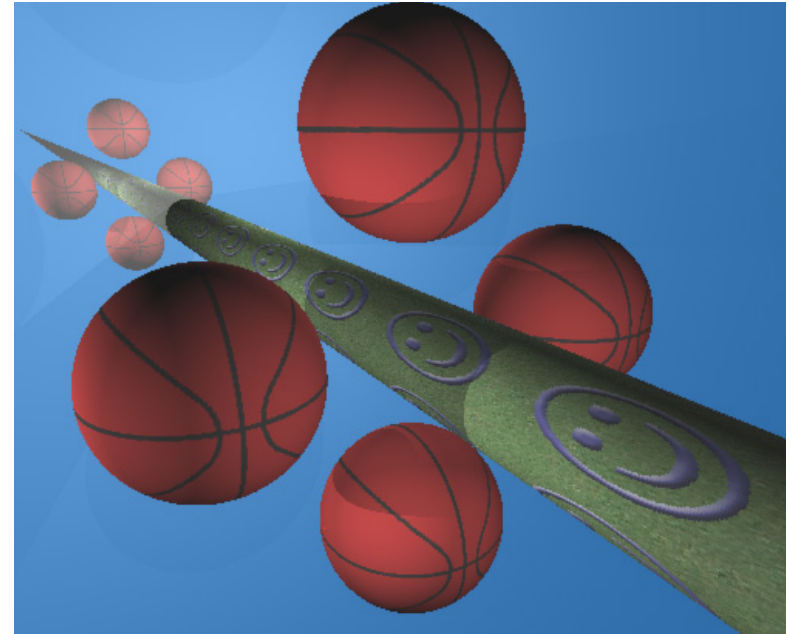


$$(u, v) = (x, y)$$

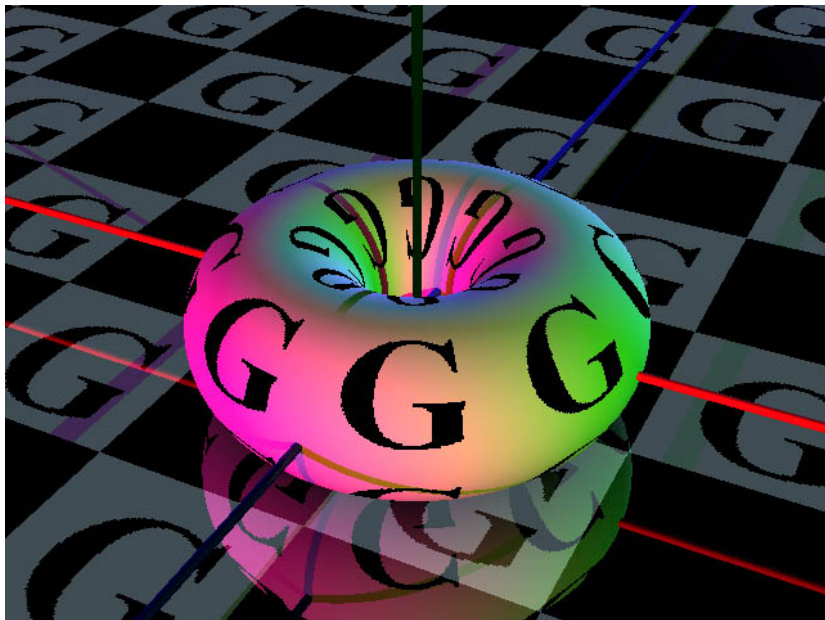




$$(u, v) = \left( \operatorname{atan} 2(x, z), \operatorname{acos} \left( \frac{y}{\sqrt{x^2 + y^2}} \right) \right)$$



$$(u, v) = \left( \operatorname{atan} 2 \left( \frac{x}{\sqrt{x^2 + y^2}}, \frac{z}{\sqrt{x^2 + y^2}} \right), \sqrt{x^2 + y^2} \right)$$

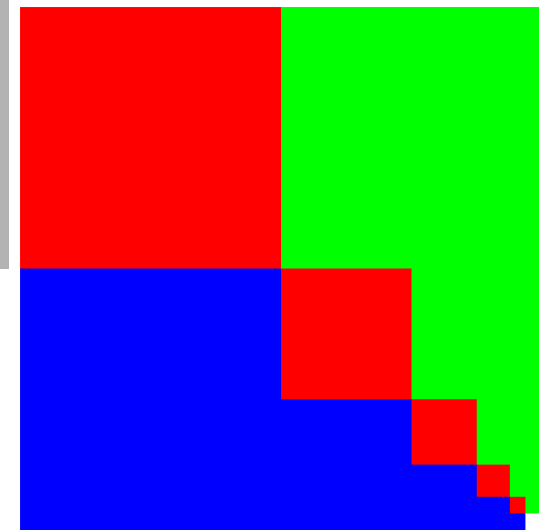
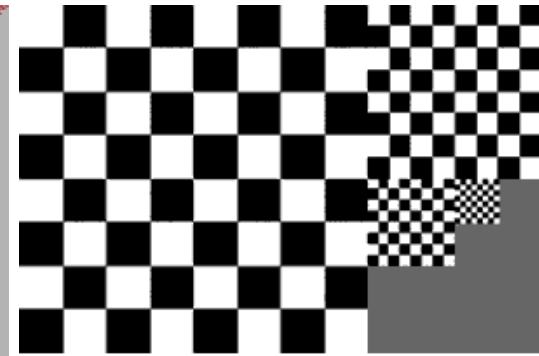




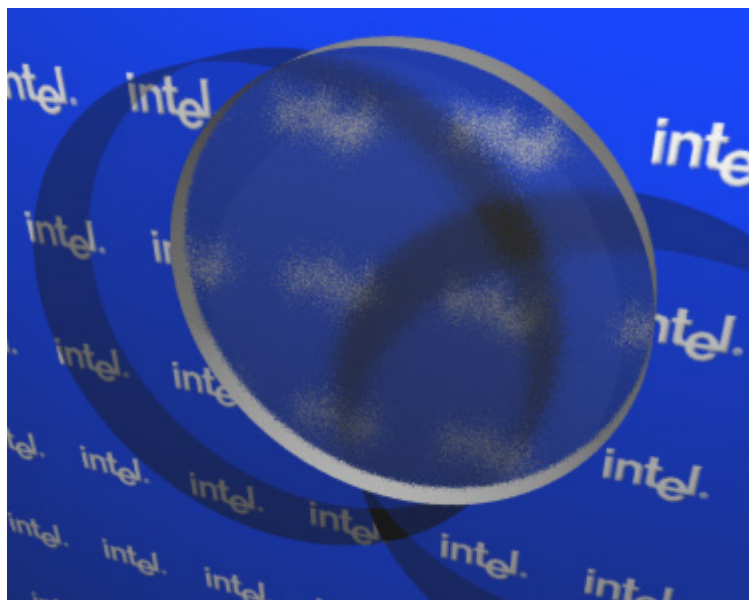
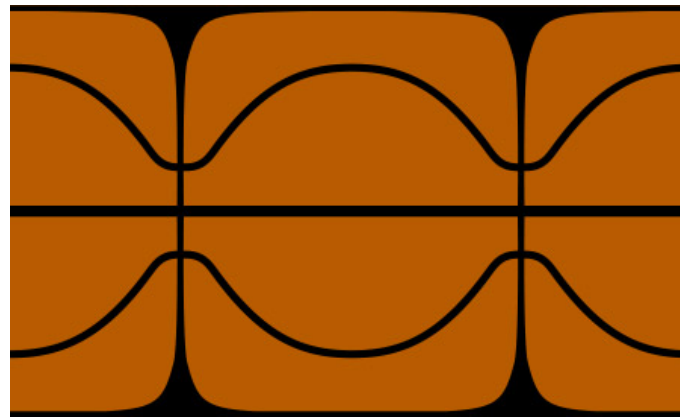
- S3TC



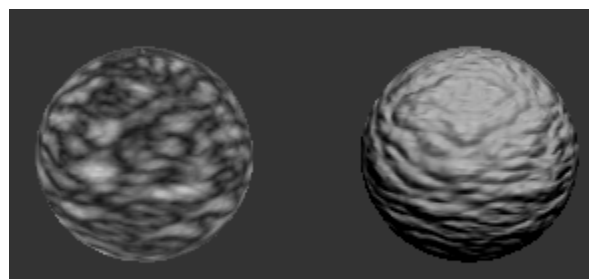
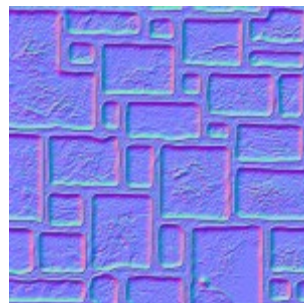
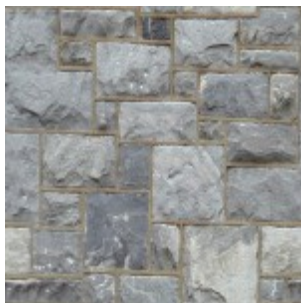
- MIP – “multum in parvo”

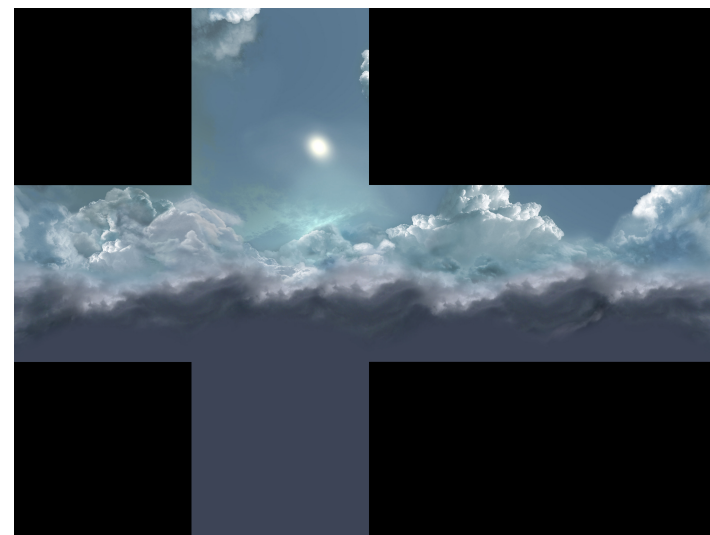
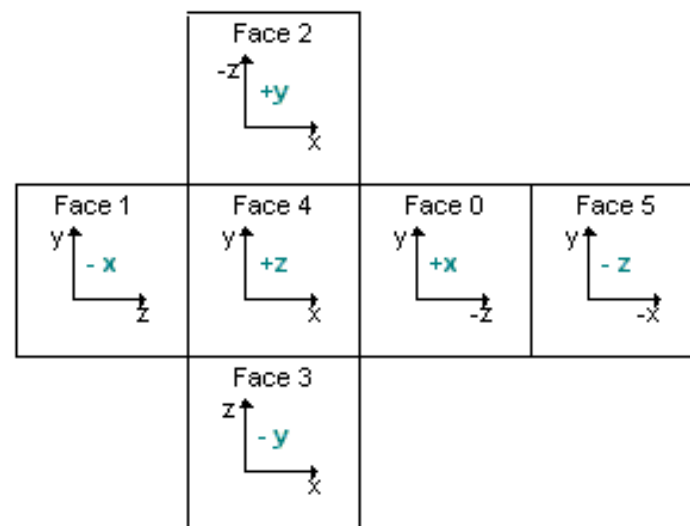


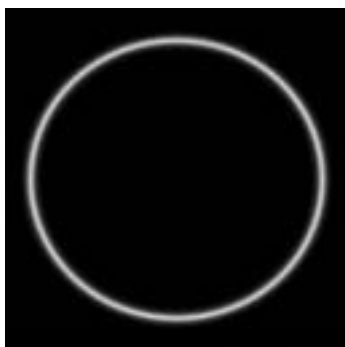
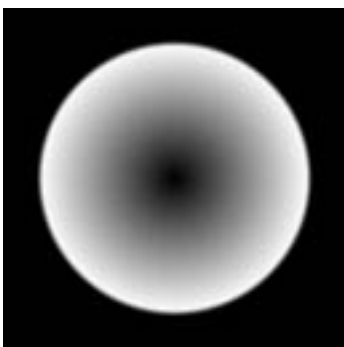
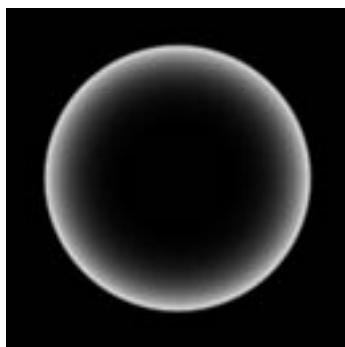
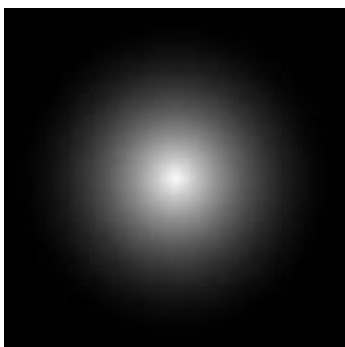
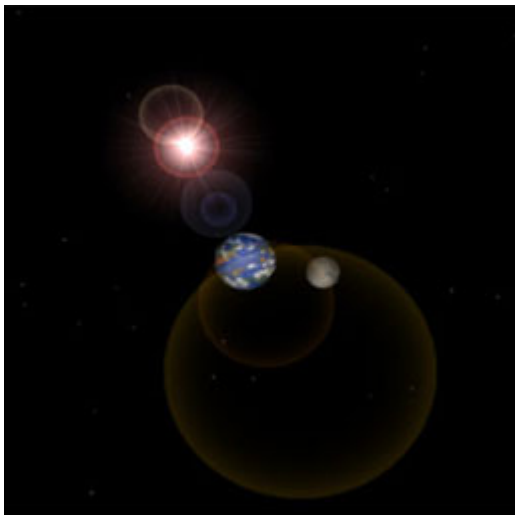
$$miplevel = \log_2 \left( \frac{dist}{texelsize \cdot resolution} \right) + mipbias$$

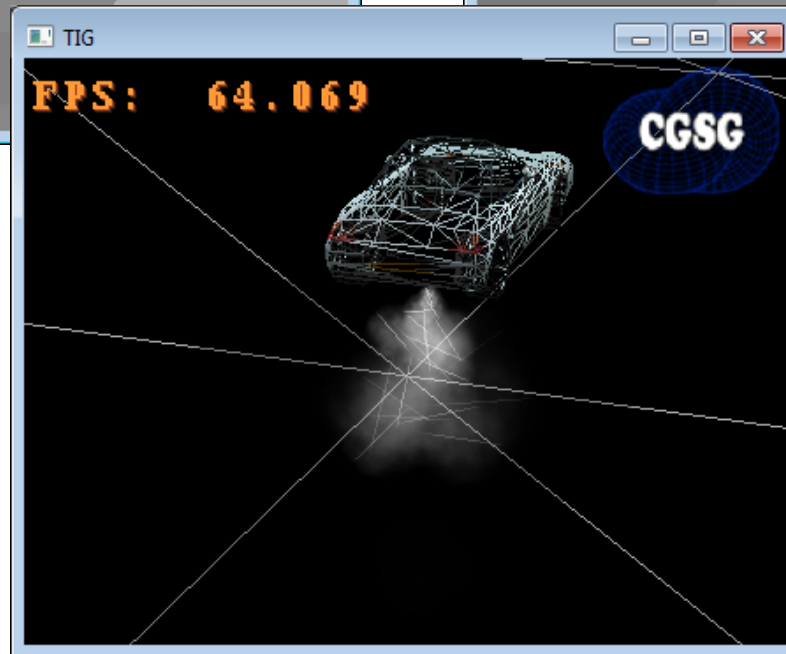


$$\vec{N}' = \vec{N} + (\vec{N} \times \vec{D}_u) \cdot Bu - (\vec{N} \times \vec{D}_v) \cdot Bv$$





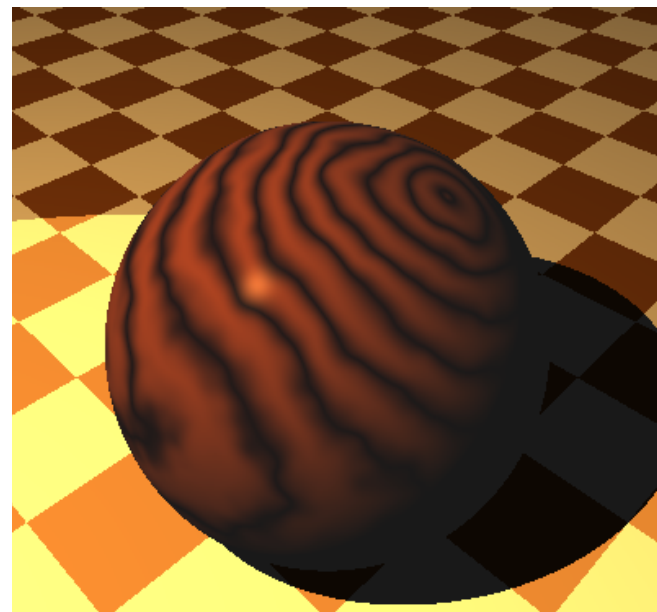
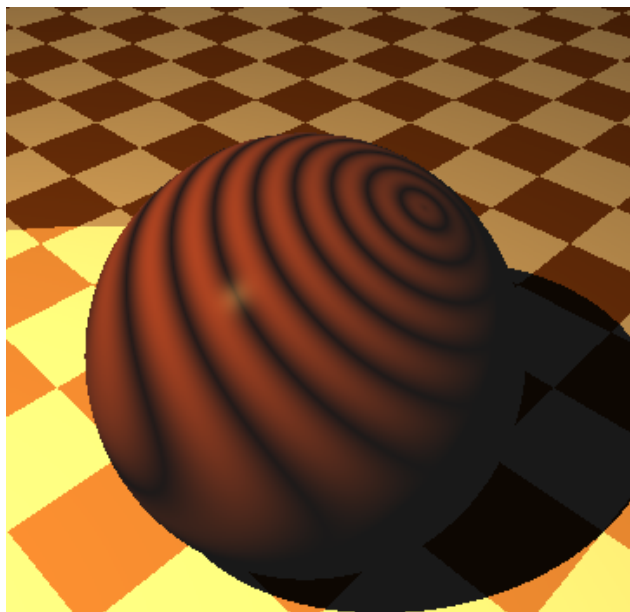




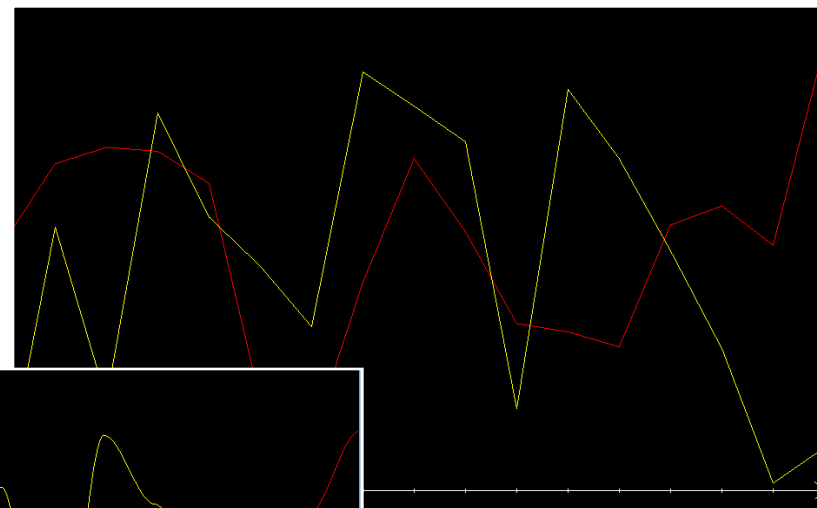
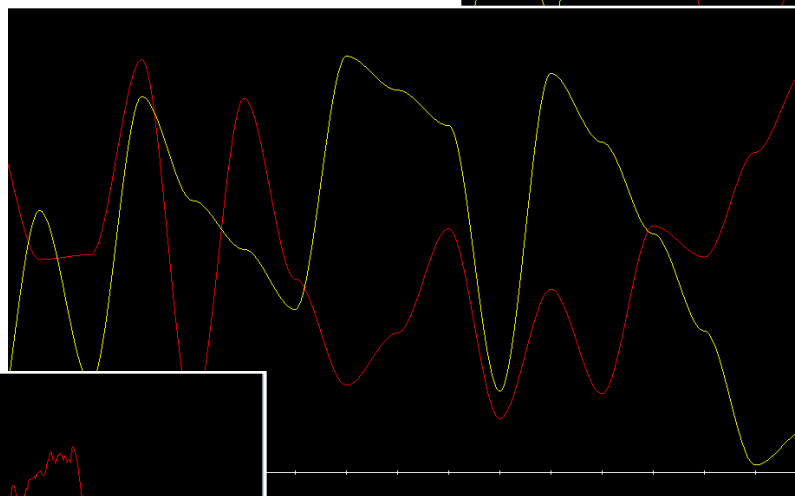
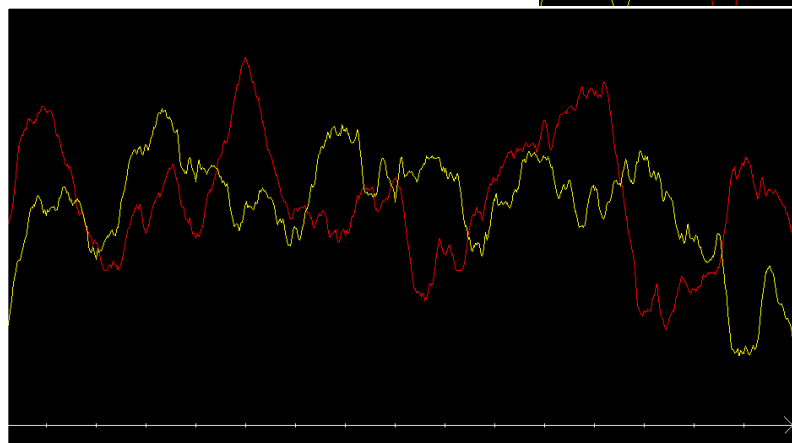
$$C(x, y, z) = C_1 + (C_1 - C_2) \cdot f\left(\sqrt{x^2 + y^2}\right)$$

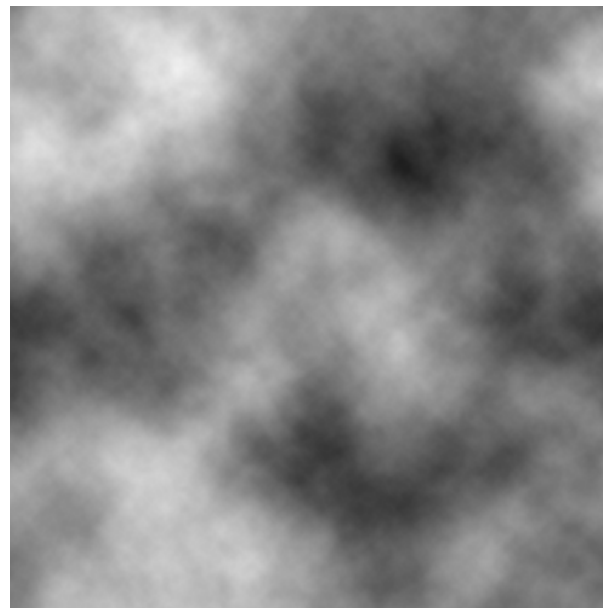
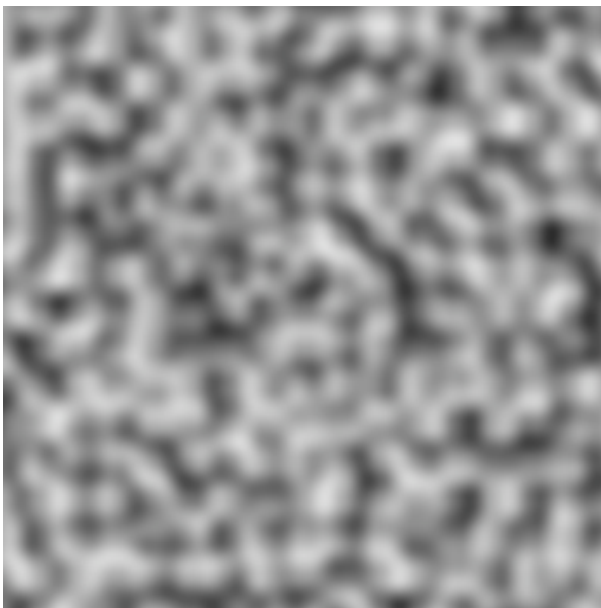
$$f(a) = \frac{1 + \sin a}{2}$$

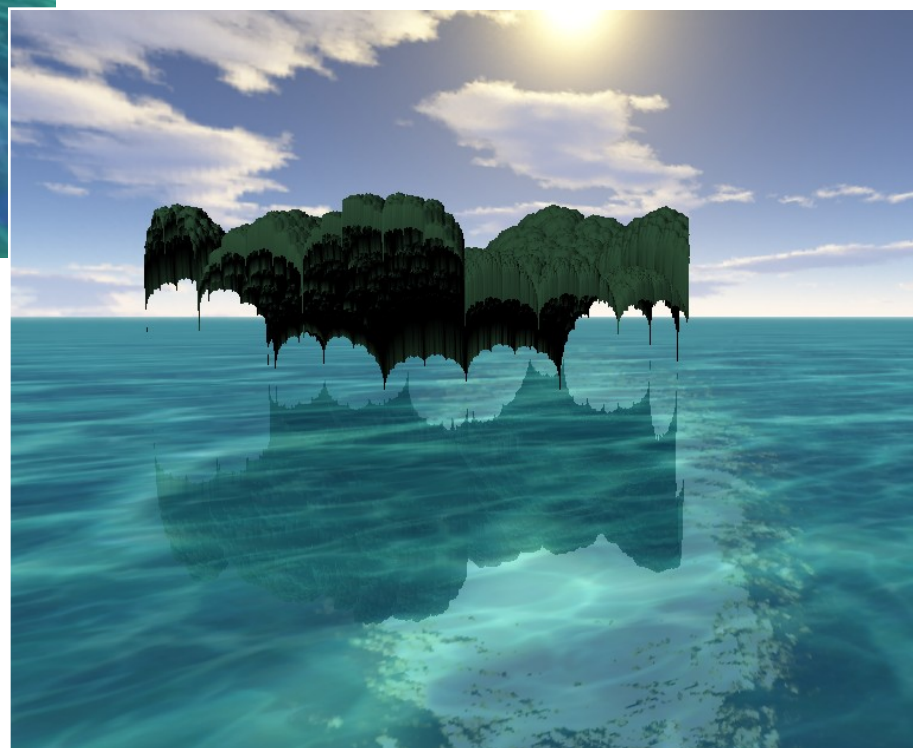
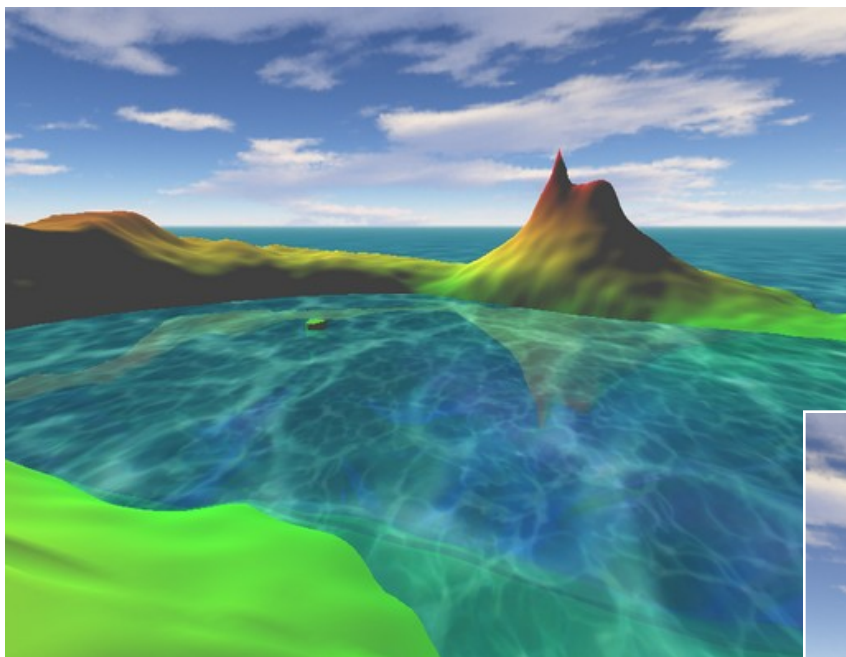
$$f(a) = \left(\frac{1 + \sin(a + \text{noise}(x, y, z))}{2}\right)^p$$

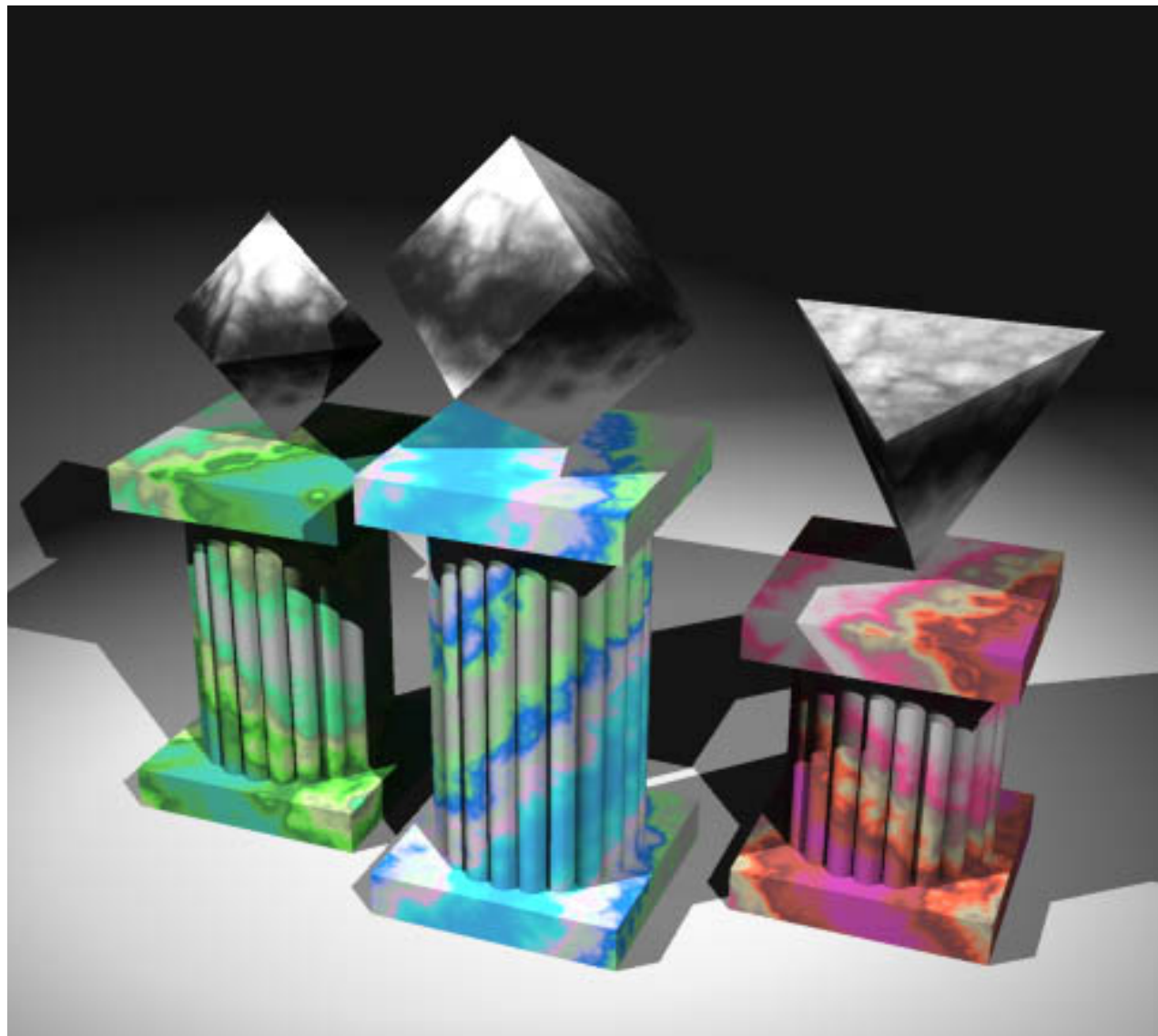
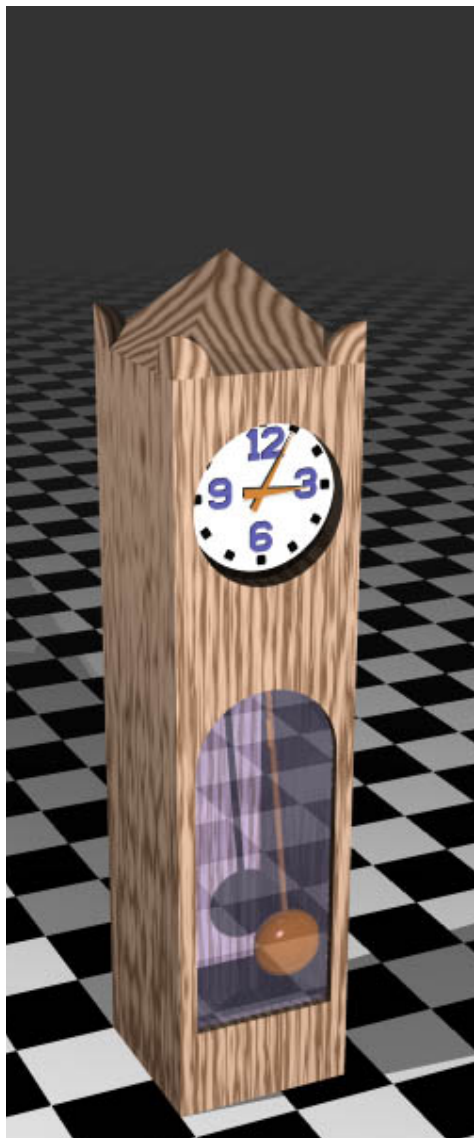












- Практические задания (до зачетного занятия)
  - Реализовать шумовые текстуры мрамора, дерева и применить их к предыдущим заданиям.