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(54) **Adaptive multi-frequency shading**

(57) An architecture for pixel shading, enables flexible control of shading rates and automatic shading reuse between triangles in tessellated primitives in some embodiments. The cost of pixel shading may then be decoupled from the geometric complexity. Wider use of tessellation and fine geometry may be made more feasible, even at very limited power budgets. Shading may be done over small local grids in parametric patch space, with reusing of shading for nearby samples. The decom-

position of shaders into multiple parts is supported, which parts are shaded at different frequencies. Shading rates can be locally and adaptively controlled, in order to direct the computations to visually important areas and to provide performance scaling with a graceful degradation of quality. Another important benefit, in some embodiments, of shading in patch space is that it allows efficient rendering of distribution effects, which further closes the gap between real-time and offline rendering.

