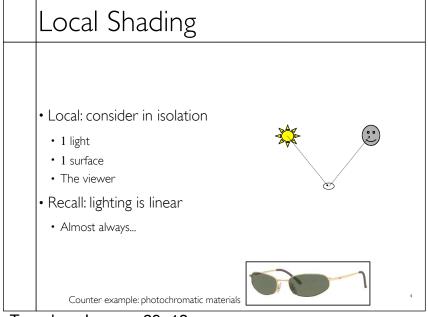
CS-184: Computer Graphics	
Lecture #3: Shading	
Prof. James O'Brien University of California, Berkeley	

Announcements]
• Assignment 0: due this Friday	
• Homework 1: due Monday	
• Assignment I: due Friday, Feb. 15	
Will be posted on Monday	
2	2

Today

- Local Illumination & Shading
 - The BRDF
 - Simple diffuse and specular approximations
- Shading interpolation: flat, Gouraud, Phong
- Some miscellaneous tricks

3 3





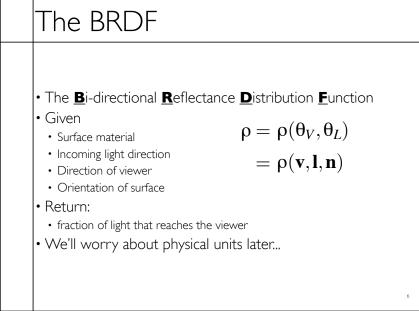
Local Shading

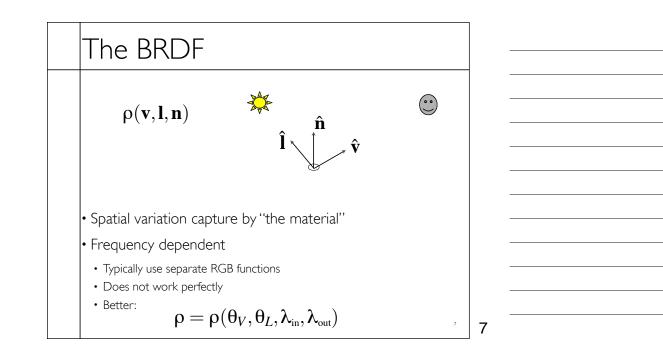
• Examples of non-local phenomena

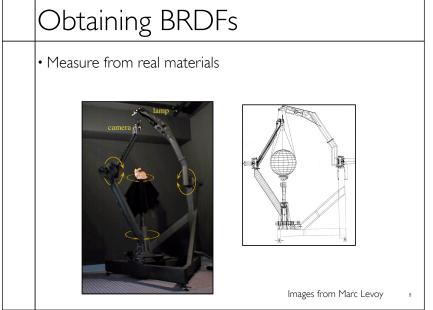
- Shadows
- Reflections
- Refraction
- Indirect lighting

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Obtaining BRDFs

- Measure from real materials
- Computer simulation
- Simple model + complex geometry
- Derive model by analysis
- Make something up

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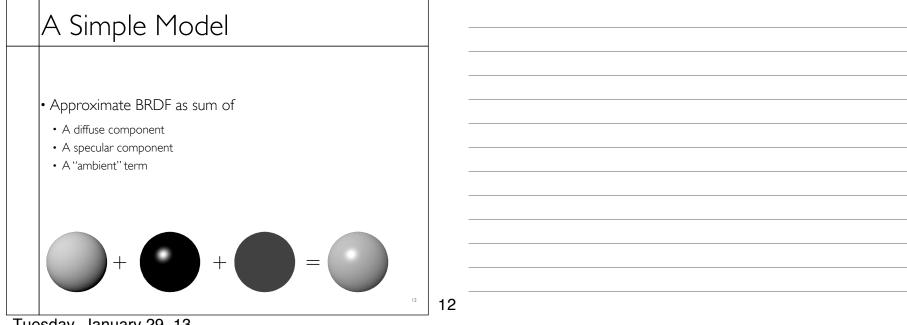
• The BRDF model does not capture everything

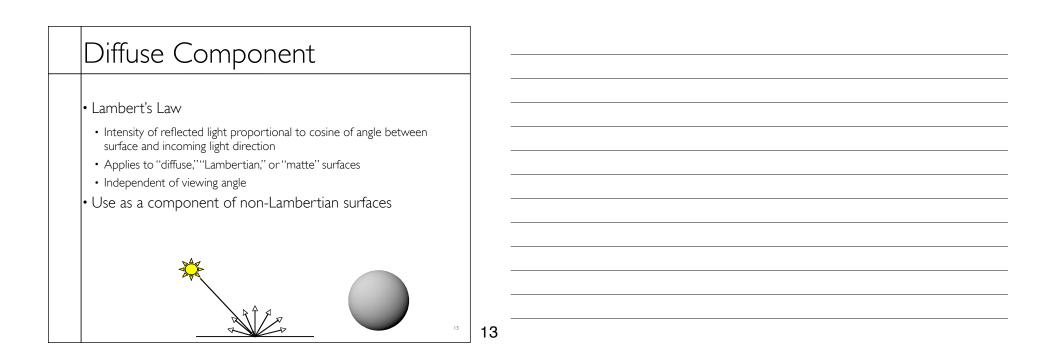
• e.g. Inter-frequency interactions

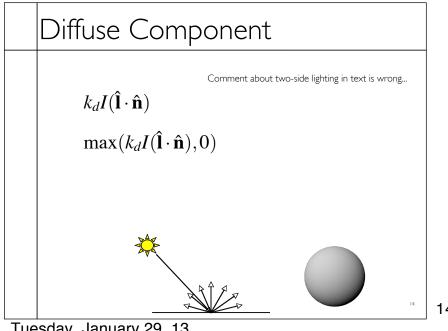


 $ho=
ho(heta_V, heta_L,\lambda_{ ext{in}},\lambda_{ ext{out}})$ This version would work.... ,

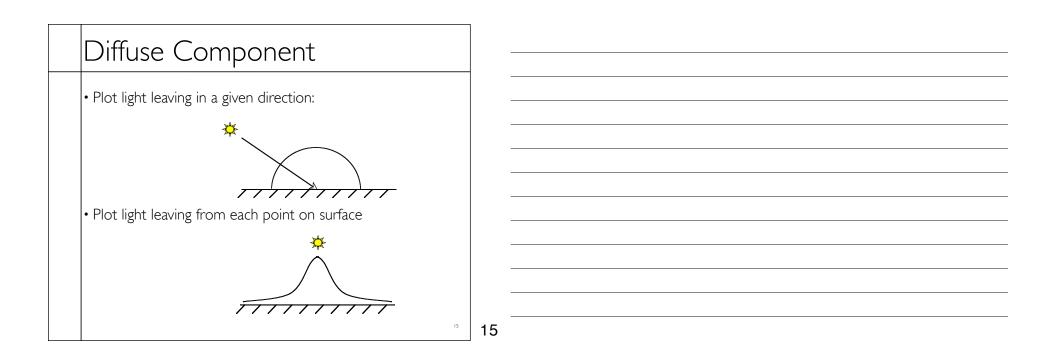
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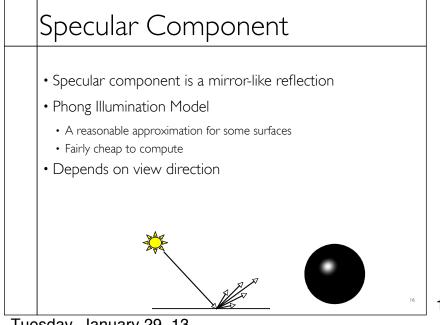




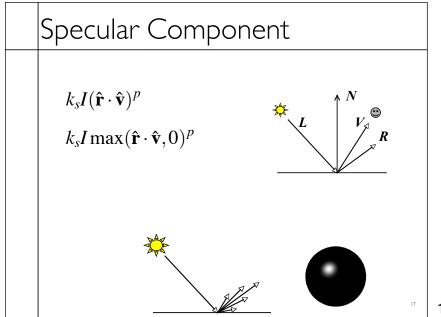




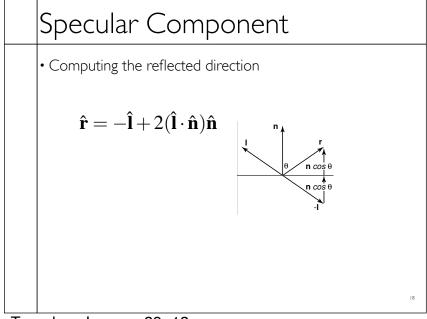




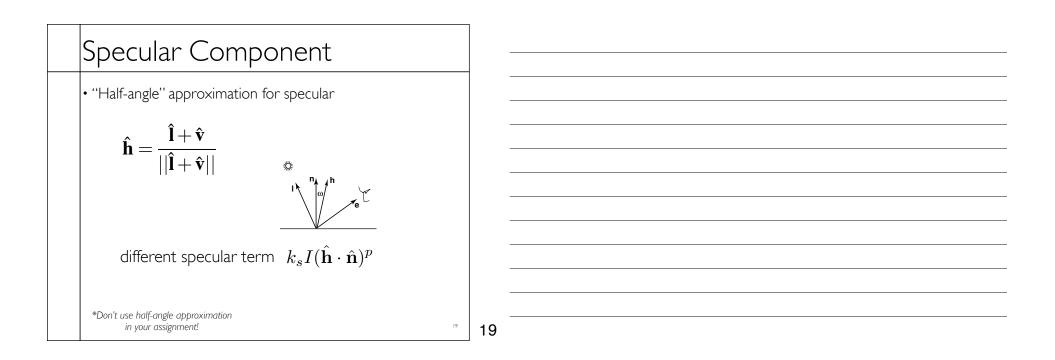
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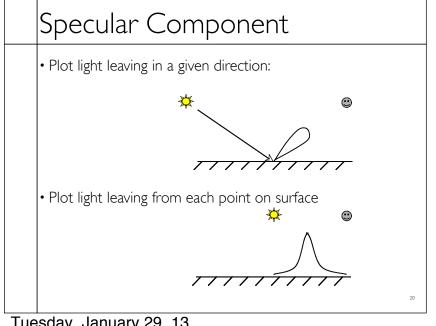




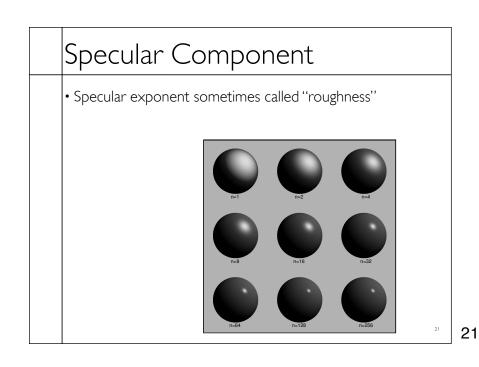


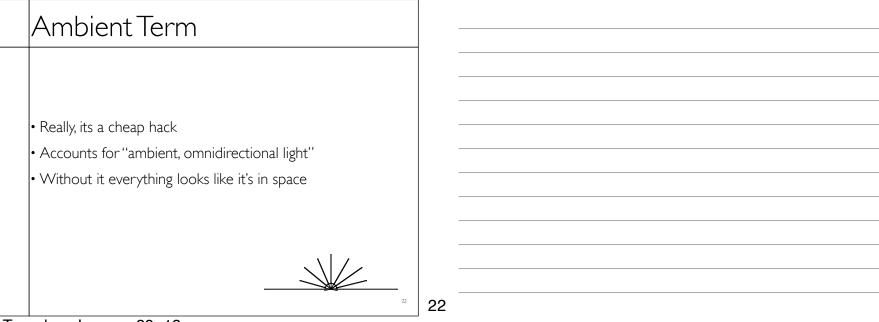


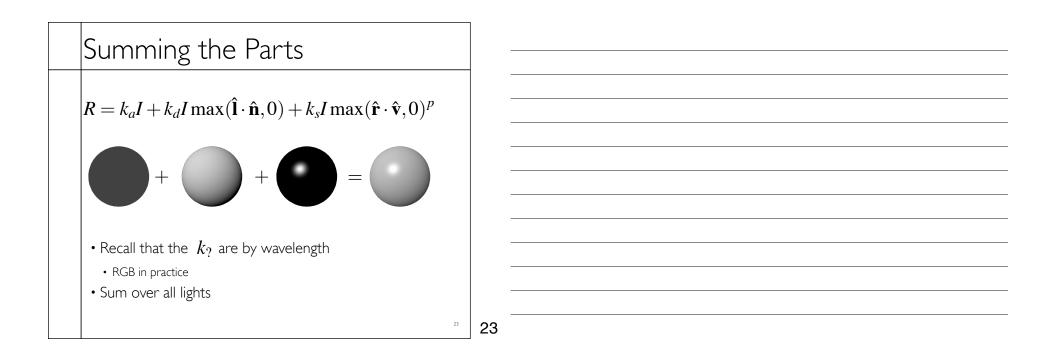


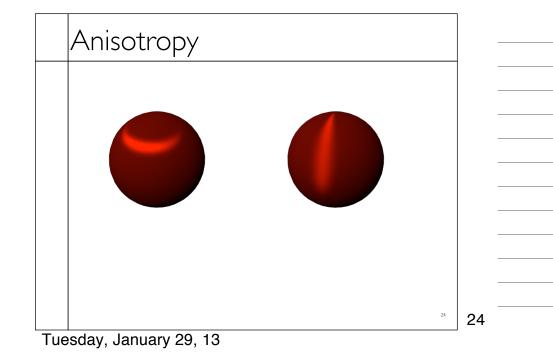


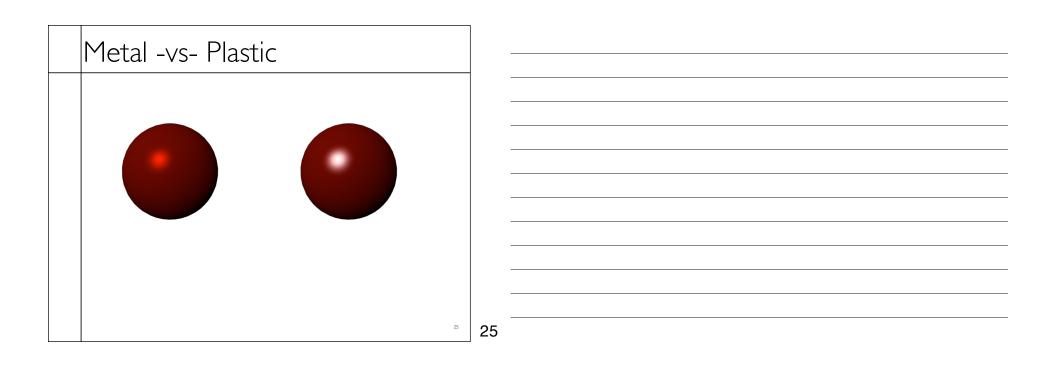


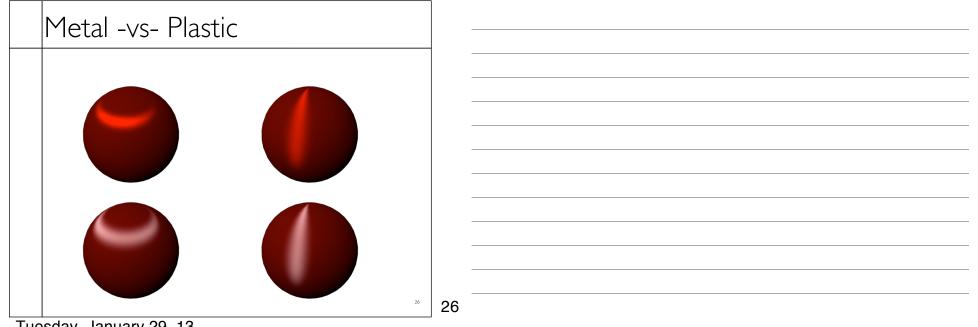


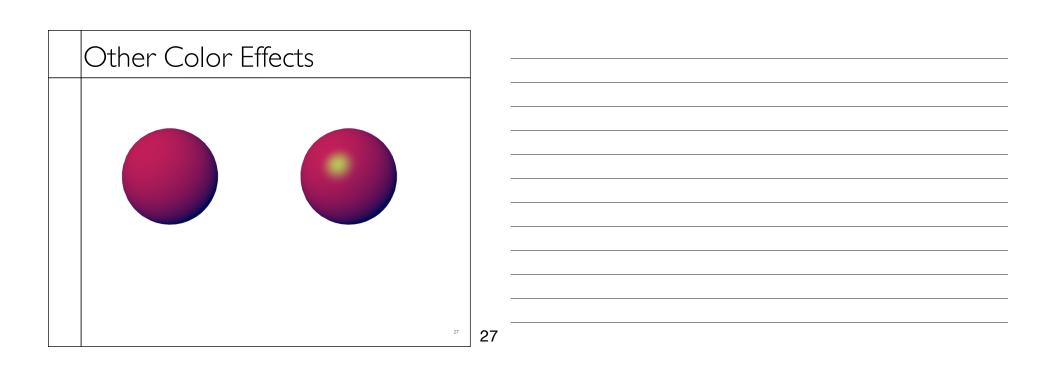


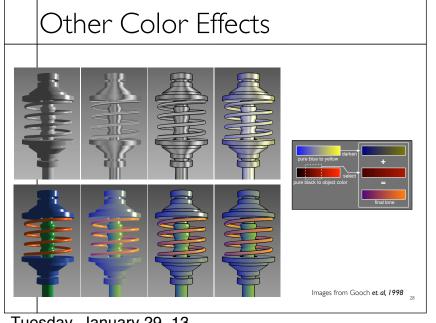














Measured BRDFs

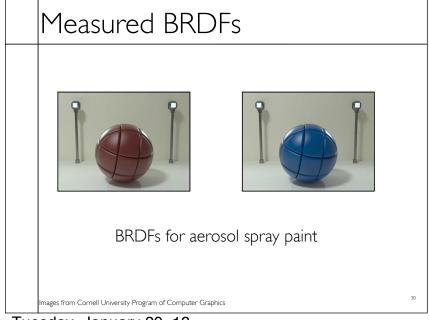




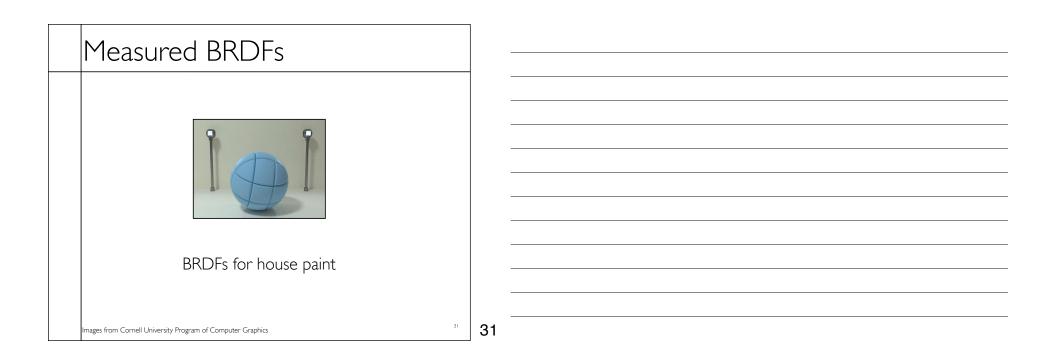
mages from Cornell University Program of Computer Graphics

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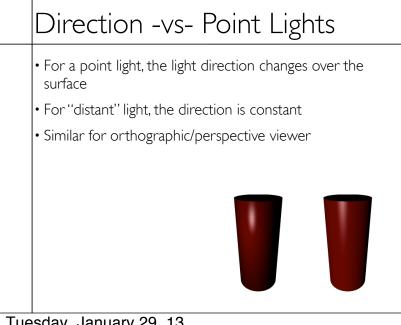
Measured BRDFs	
BRDFs for lucite sheet	
Images from Cornell University Program of Computer Graphics	³² 32

Details Beget Realism

• The "computer generated" look is often due to a lack of fine/subtle details... a lack of richness.



33 33

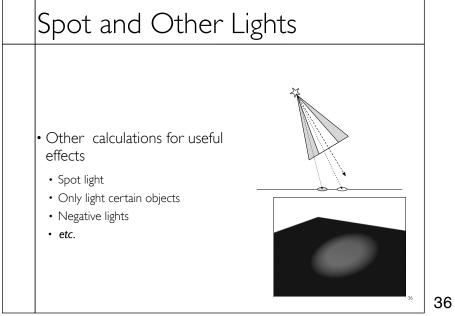


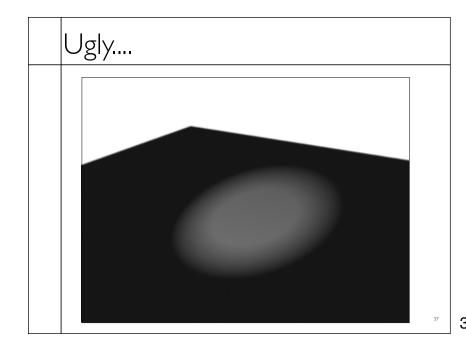
34

Falloff

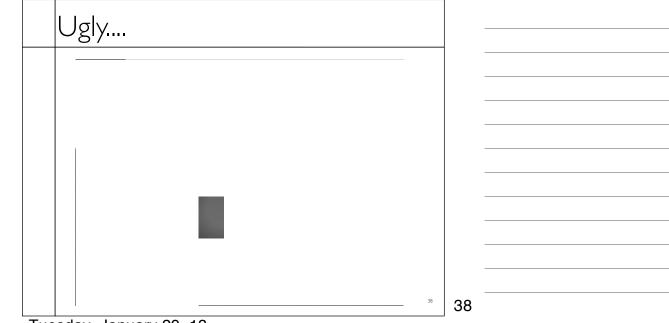
- Physically correct: $1/r^2$ light intensify falloff
- Tends to look bad (why?)
- Not used in practice
- Sometimes compromise of 1/r used

35 35









Tuesday, January 29, 13

