Three-part Presentation

1. What's New in Radiance 5.0
2. Photon-map Integration in 5.0
3. Out-of-plane Complex Shading

What's New in Radiance 5.0?

Greg Ward
Anyhere Software

* Rewrote genBSDF, simplifying and adding color capabilities

* Added color BSDF support to tensor tree and Klems routines for rendering

* Checked photon-mapping into core code (finally at last, Halleluja)

* Added photon map support to rad, trad

genBSDF Re-write

* Utilize new rfluxmtx and wrapBSDF tools to simplify Perl script
* Shrunk from 744 lines to 471
* Added color support (+C option)

NAME

wrapBSDF - put XML wrapper around WINDOW6 BSDF data

SYNOPSIS

wrapBSDF [**–W**][**–c**][**–a {kf|kh|kq|t3|t4}**][**–u unit**][**–g geom.mgf**][**–f 'x=string;y=string'**][**–s spectr**][**–tb inp**][**–tf inp**][**–rb inp**][**–rf inp**][**–C comm**][**input.xml**]

DESCRIPTION

WrapBSDF takes ASCII matrix or tensor tree data given in one or more *–tf, –tb, –rf,* and *–rb* options and adds them to the given *input.xml* file or to a standard template suitable for *Radiance* and *WINDOW6*. The *–W* option may be given to ensure adherence to the *WINDOW6* requirements, which draws from a standard template and warns the user if the required additional fields are not provided.

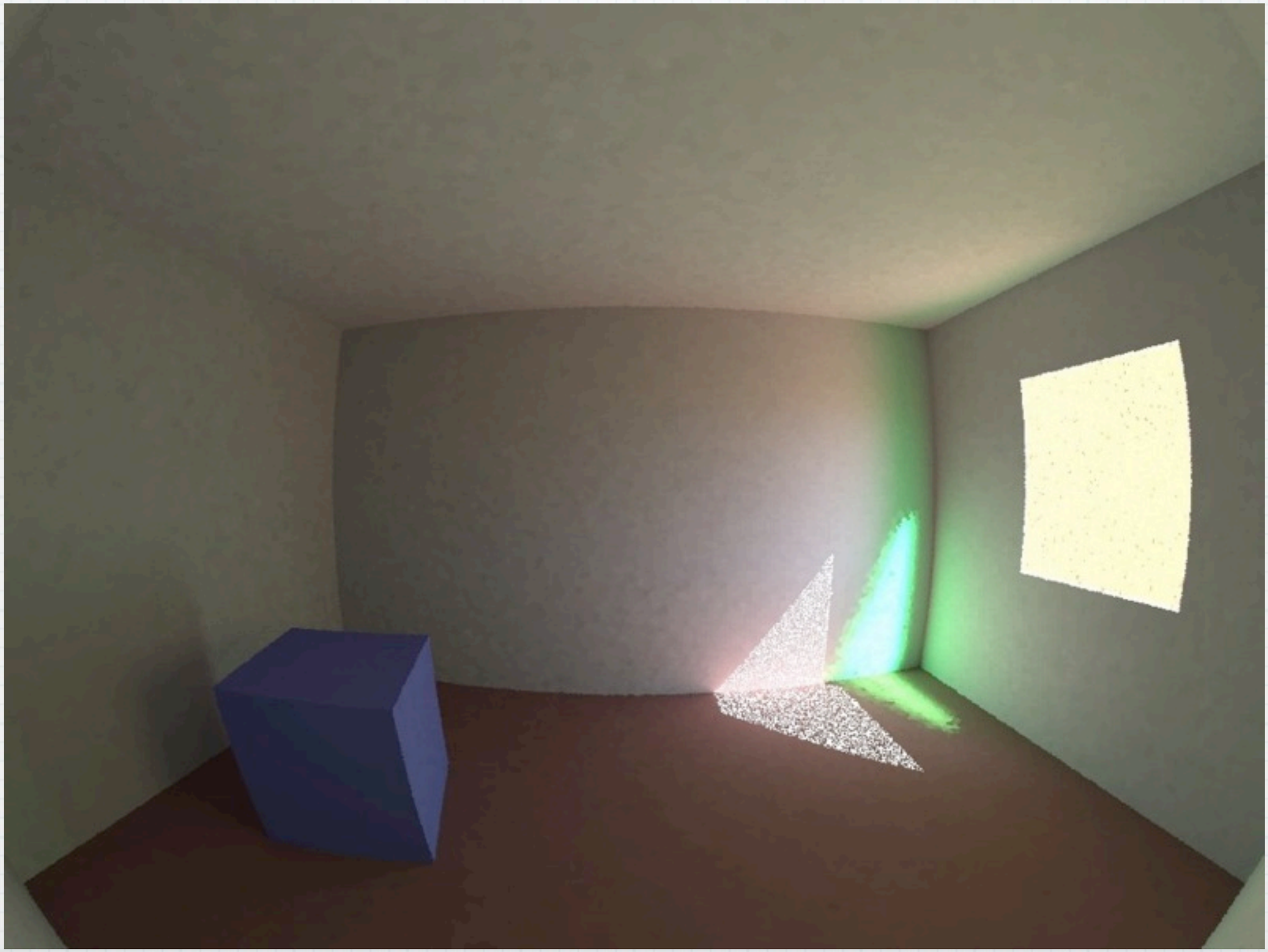
Fields may be set by one or more *–f* options, which take pairs of XML tag names and values, such as *–f Manufacturer=ACME* . A number of shorthand names are provided corresponding to the following tags (asterisk tags are required with -W):

m	Manufacturer(*)
n	Name(*)
c	ThermalConductivity
ef	EmissivityFront
eb	EmissivityBack
eo	EffectiveOpennessFraction
t	Thickness(*)
h	Height
w	Width

Color BSDF Support

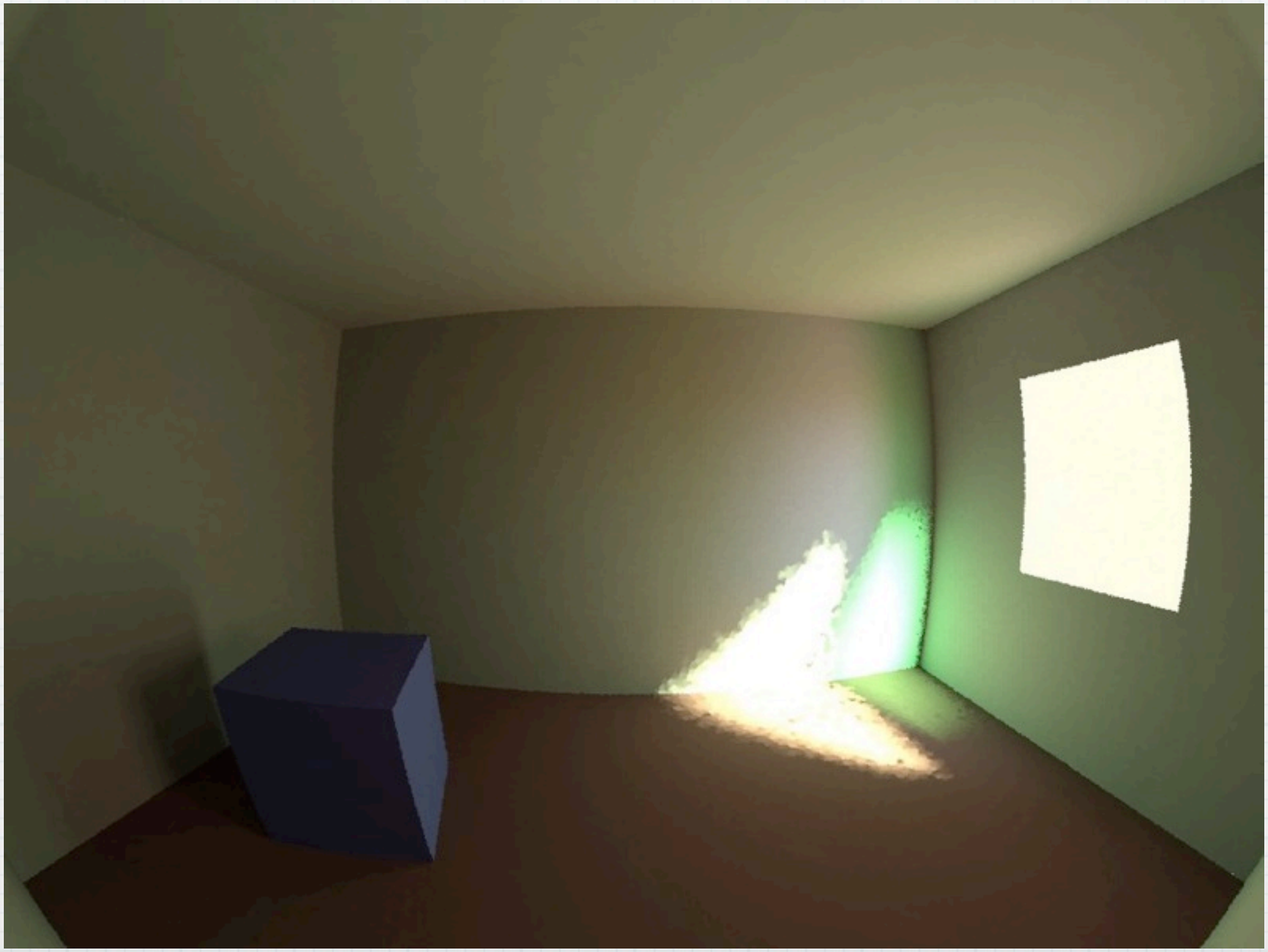
* Klems XML files now support CIE X and Z matrix data
  * In-core representation 2 bytes/color
* Tensor tree XML files add CIE u′ and v′
* BSDF library interface unchanged

Reference Scene



Tensor Tree (before)

Tensor Tree (after)



Photon-mapping(!)

* Added Roland Schregle's routines for photon-mapping to Radiance core
* Funded (initally) by ISE, more recently by HSLU and DOE
  * Plus Roland's voluntary support
* Involved rethinking of code integration methods to manage maintenance

Photon Map Support

* The rad program can manage photon map creation & use during rendering
* GUI interface (trad) supports associated rendering settings as well

Conclusions

* Official 5.0 release soon
* Further description of photon-mapping in following talks
* Example tests of rfluxmtx and new 4-phase method up next
* Breaking: evalglare 1.17 now in distro