What's New in Radiance for 2013

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In Brief:

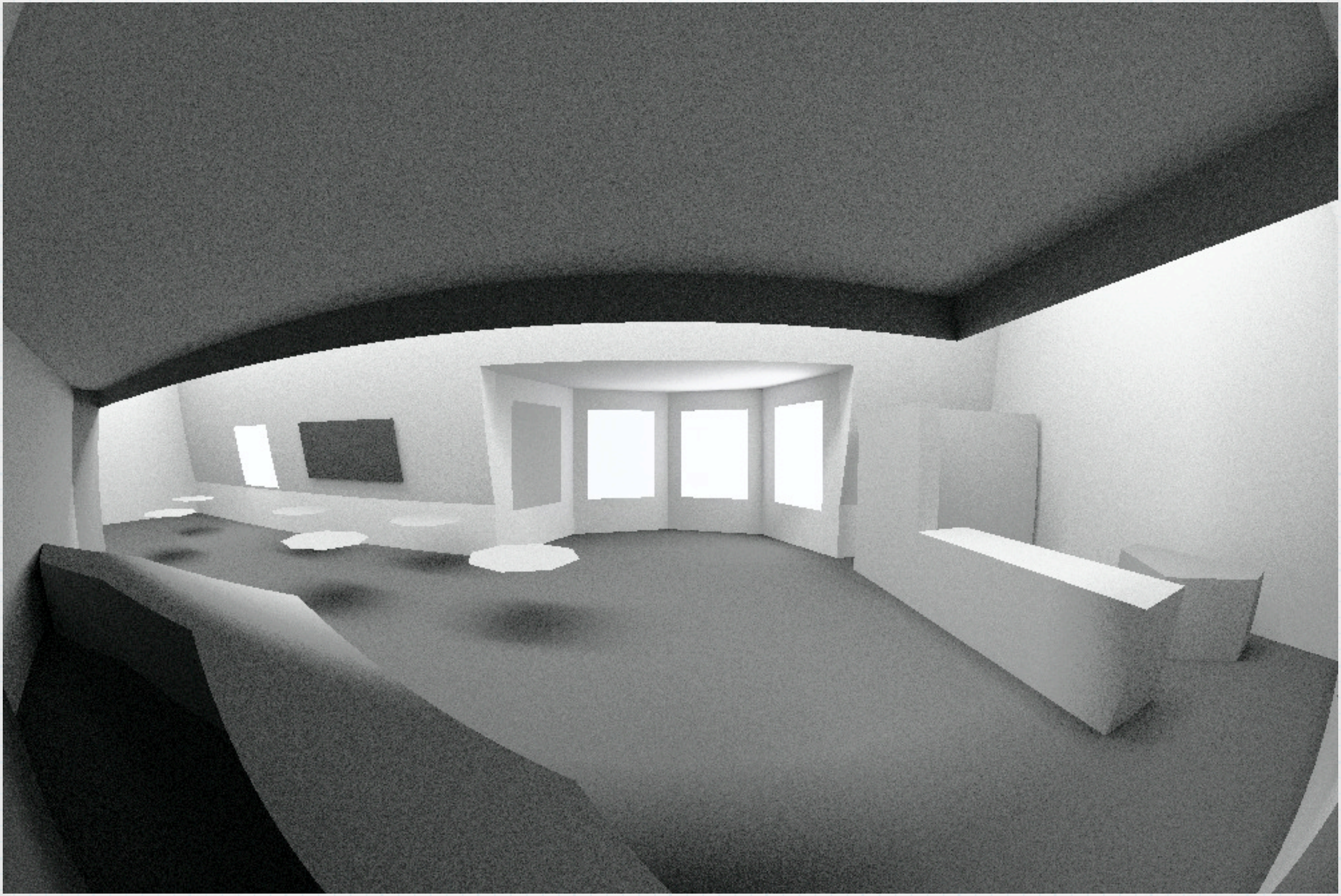
* Rewrote rtcontrib, renamed rcontrib
* Ashikhmin-Shirley reflectance model
* Minor improvements to trad
* Important bug fixes for BSDFs

Rewrote Rtcontrib

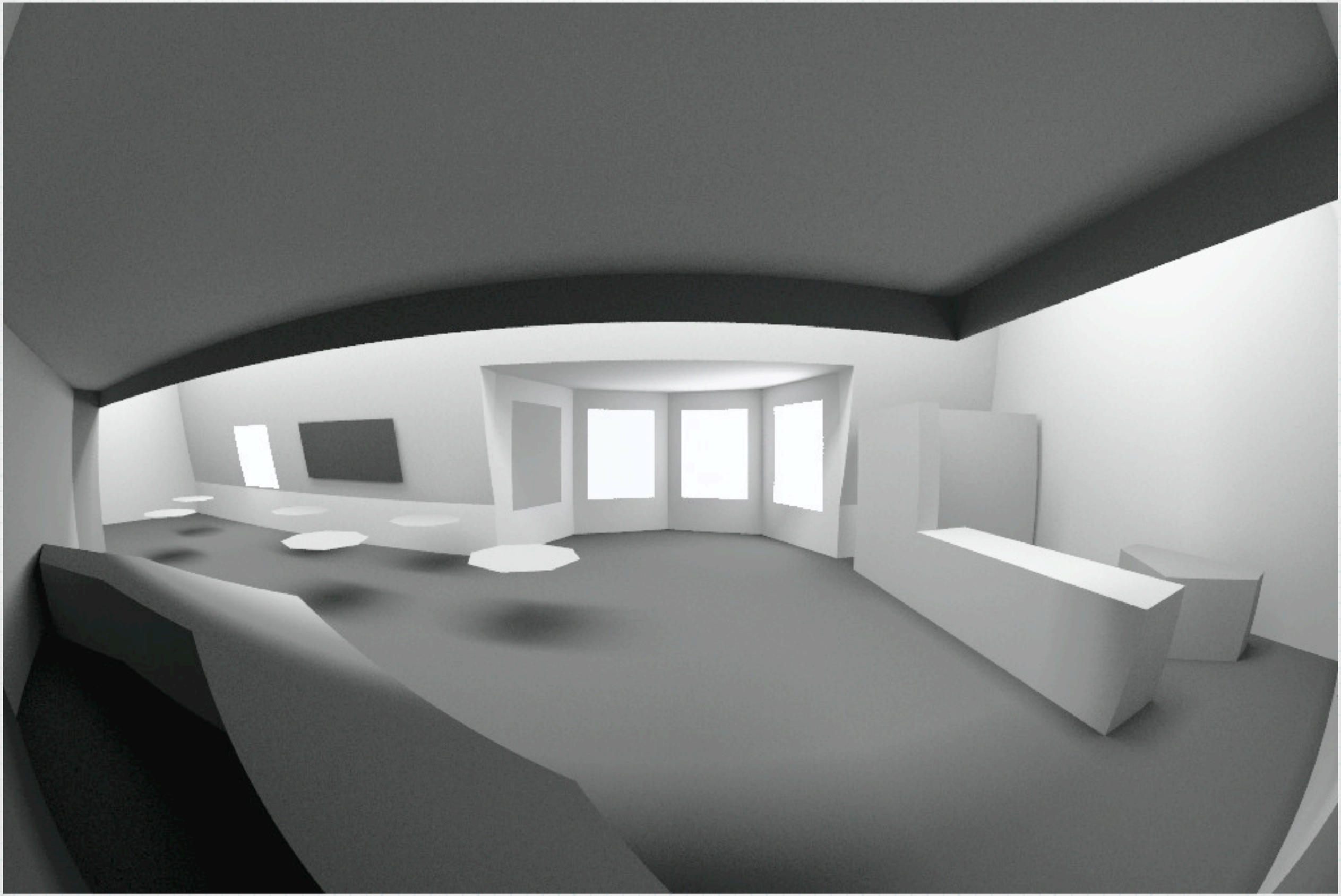
* First time I have (almost) completely rewritten a program in Radiance
* It needed it!
  * Too much memory overhead
  * Did not scale well with # processors
* New version works the same but faster

How Is It Different?

* It's named **rcontrib** now, built in src/rt
* No longer calls **rtrace** — self-contained
* Subprocesses are copies of parent
* Using -c is now particularly efficient
* Also added -c option to **vwrays**



Before: rtcontrib -c 1



After: rcontrib -c 16

Ashikhmin-Shirley

* Anisotropic reflection model, similar to WGMD already in Radiance
* Added mostly for comparison purposes
* Has Fresnel component always active
  * ...and colored specular component
* Nicolas Bonneel initiated addition

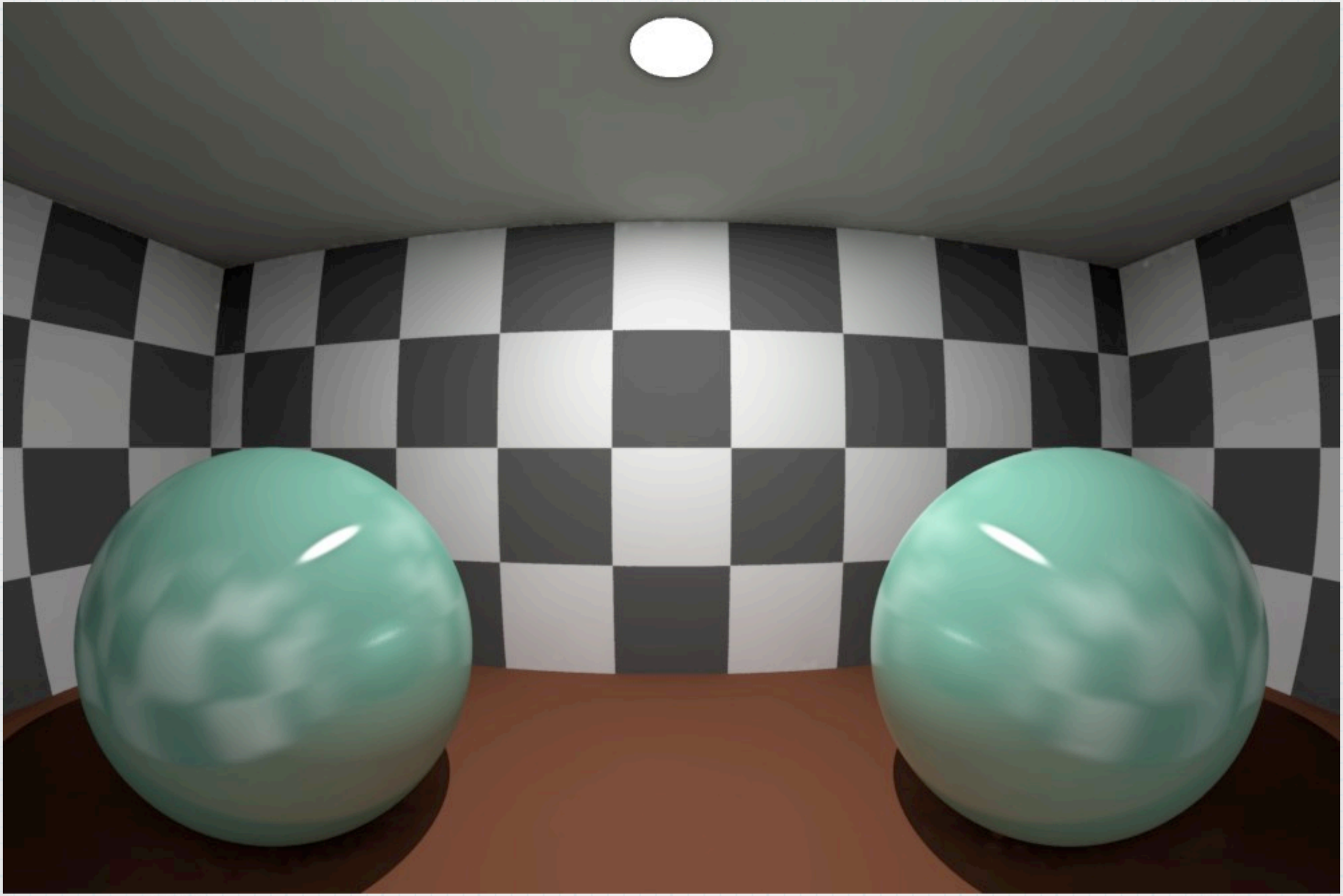
Compared to WGMD

```
void plastic2 mat1
4 0 1 0 .
0
6 .3 .7 .5 .26 .1 .02

void ashik2 mat2
4 0 1 0 .
0
8 .3 .7 .5 .26 .26 .26 150 5000
```

Colored specularity

Specular powers



WGMD

Ashikhmin-Shirley

Minor trad Improvements

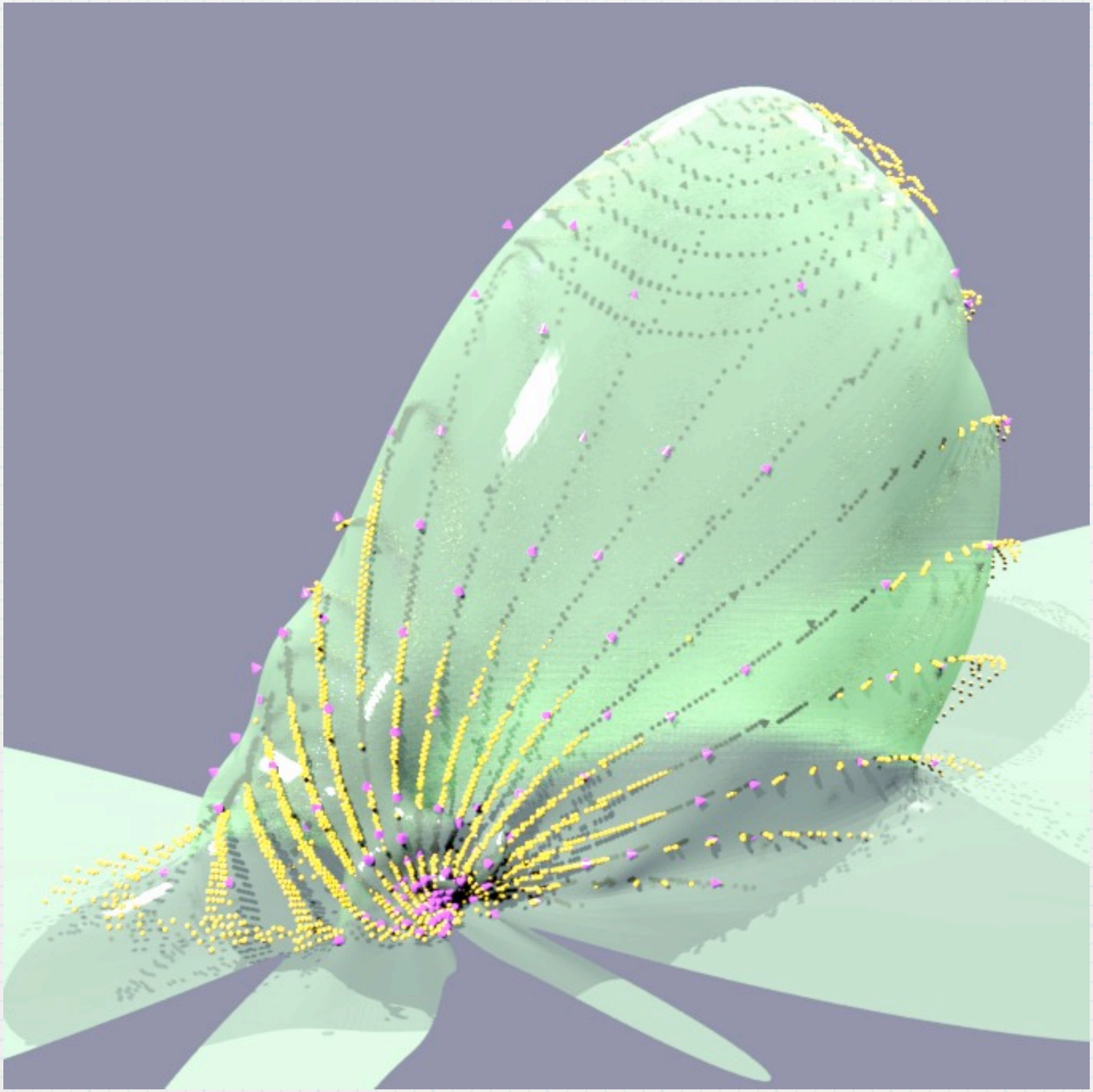
* Related suprises:
  * I didn't realize people still used trad
  * I didn't realize trad still worked
* Fixed some Tcl/Tk issues
* Added slider for "Number of processes"
  * request by Terrance McMinn

BSDF Bug Fixes

* genBSDF output of Klems matrices flawed in 4.1 release
* Bug in proxy transmission
* Bug in tensor tree reciprocity

What's Next

* Interpolation method to bring BSDF measurements into tensor tree rep.
* Annual version of dctimestep that takes sky matrix rather than vectors
* Andy McNeil's 4- or 5-phase method
  * Fixes numerous problems in 3-phase



Interpolating measured BRDF data (PAB-Opto