

Projet Horizon - Horizon Project

-- Projet Horizon (site interne) - Science - Observations virtuelles - codes --

codes

codes

Blaizot Jeremy
Monday 24 October 2005

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I. Lensing in strong and weak regime

Pichon Christophe, Aubert
Dominique
Sunday 10 December 2006

Résumé :

Weak and strong lensing map generation from high res zoom simulations

Casper

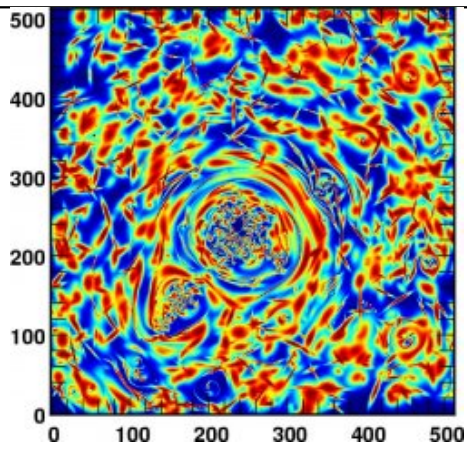


Initial field	Example of lensed image The lens is FOF 554. The image is from the HST archive.
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Different regimes and improvement over literature

- ▶ Strong, intermediate lensing & Weak lensing DA *use GR*
- ▶ Realistic background galaxies (beyond skymaker) CP *use spiral model etc.*
- ▶ Multi bandwidth *compute colors*
- ▶ clusters, filaments and galaxies *have lots of random zooms + different orientation and redshift combinations*
- ▶ volume lensing or plane lensing. CP *code true geodesic distortion in volume.*
- ▶ realistic background distribution of galaxies CP *use adapthop catalogs*
- ▶ inversion *vary cosmological parameters*

Our purpose is to constraint the geometry of the lens (cosmology) and probe the clumpiness of the potential.



Example of more realistic lensed field The galaxies are created without noise in imagemaker.

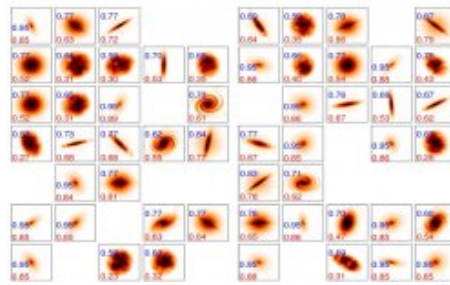
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II. Gini number and morphology classification

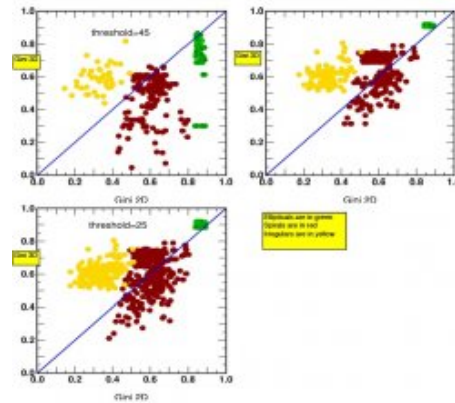
Pichon Christophe
Monday 11 December 2006



2D/3D gini classification

In the view of "analyzing" quickly some big numerical hydro simulations in which many complex galaxies form (with gaz, stars and all), one could maybe use the Gini coefficient to classify galaxies. These are home made galaxies (composed of a mixture of bulges with spiral disks). They are not designed to have perfect light profiles or colors.

We projected these 3D galaxies with random inclinations to get fake observed galaxies. And we measured the Gini coefficient for the pixels brighter than a given threshold. And just for fun, we computed the 3D Gini coefficient (we have the pixels in 3D space), thinking it would be more discriminating between ellipticals, spirals and irregular galaxies. But surprisingly, the Gini in 2D does a much better job than the 3D Gini coefficient in separating galaxy types.... It shows Gini3D (numbers in blue in the figure above) vs Gini 2D (numbers in red), for various brightness thresholds.



Gini behaviour

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