A new Weak Lensing Cluster Mass Reconstruction Method
Application to the MACSJ0717 cluster at z=0.5458

*Eric Jullo (AMU/LAM), Sandrine Pires (CEA/Irfu)*

**MACS0717 data**

**Sources WL:**
- 10121 gals
- Color-color selection
- $z_{med} = 0.65$

**Lenstool:**
- Model fitting method
- Multi-scale grid model of 468 RBF
- 1244 cl. members, PIEMD
- Bayesian error sampling
- Computation of Bayesian evidence

**Flens:**
- Inverse method
  1. FASTLens inpainting + $\gamma \rightarrow \kappa$ inversion
  2. MRLens filtering

**Density profile comparison**

**Simulated S/N maps**
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Simulations

Source WL:
- 10x10 arcmin² FOV
- 3 NFW, 1.4 x 10^{14} M_\odot, z = 1.2,
- Catalog 1: 50 gals/arcmin²
- Catalog 2: 100 gals/arcmin²
- 100 noise realizations

Lenstool:
- Model 1: 817 RBF, 36" pixels
- Model 2: 575 RBF, 18" → 74" pixels

Flens:
- Catalog 1: 64x64 pixels
- Catalog 2: 128x128 pixels