

# 18- Usando o Santos Dumont: Casos de Uso

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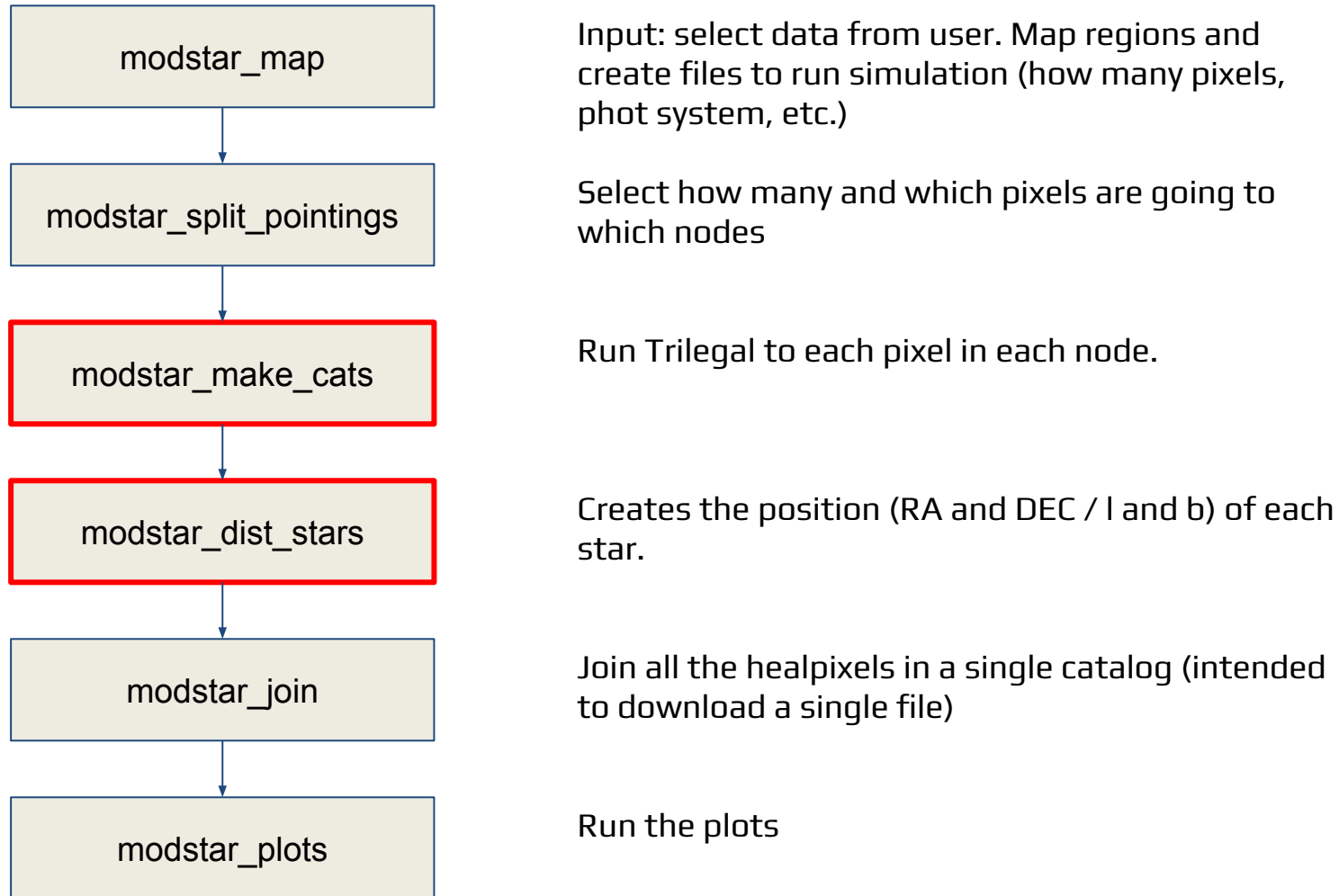
# Outline

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- GA pipelines
- LSS pipelines
- Cluster pipelines
- Testing pipelines/stress tests

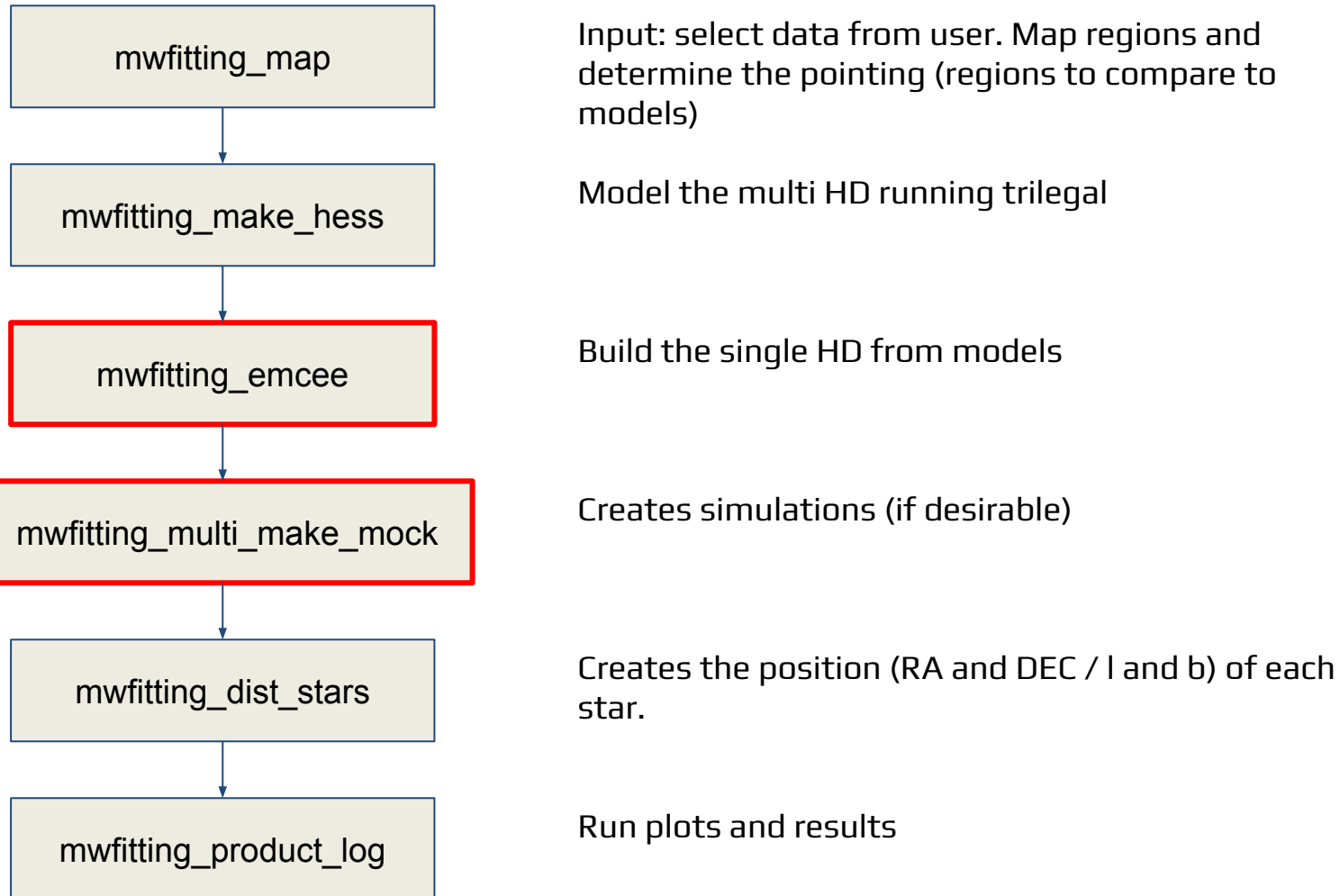
# ModStar workflow (data intensive)

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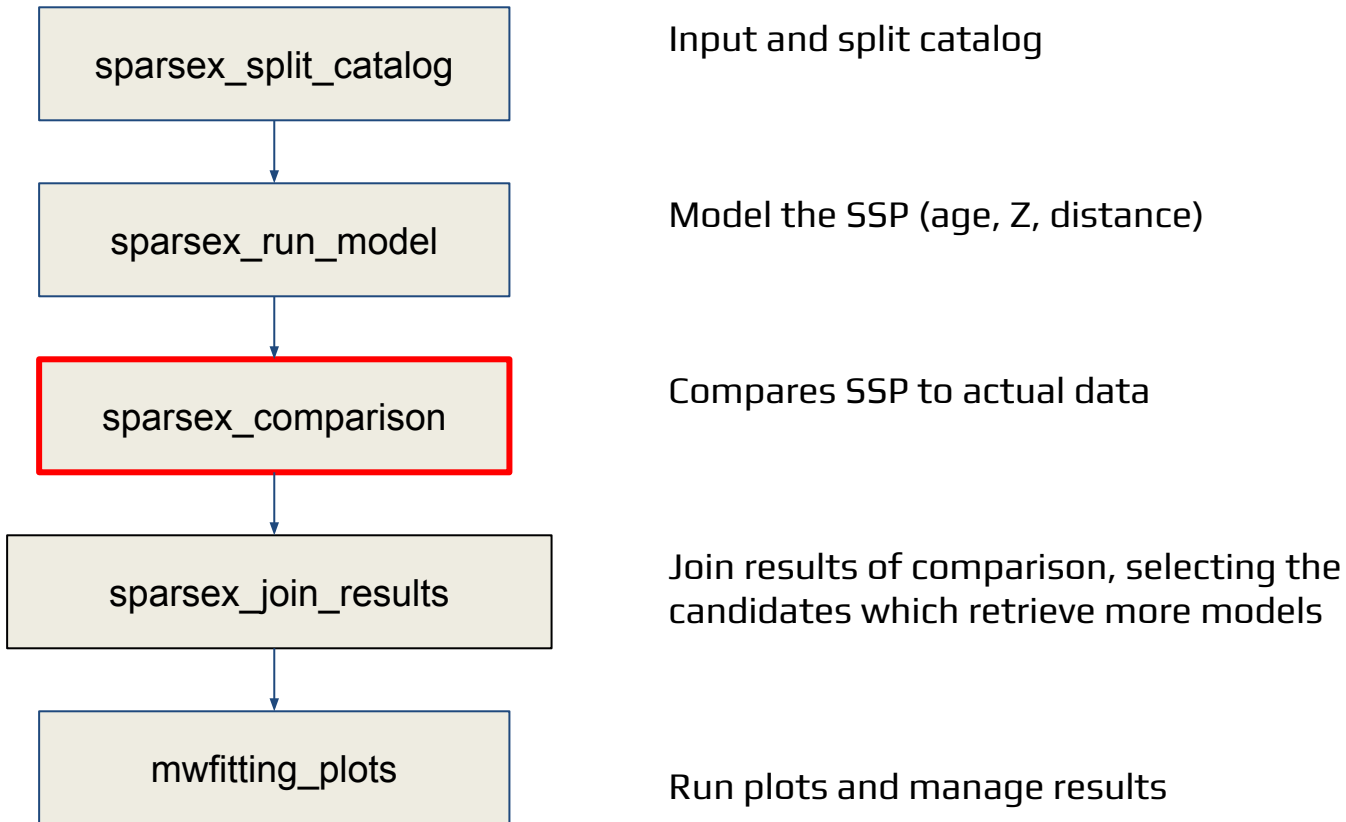
# MWFitting workflow (compute intensive)

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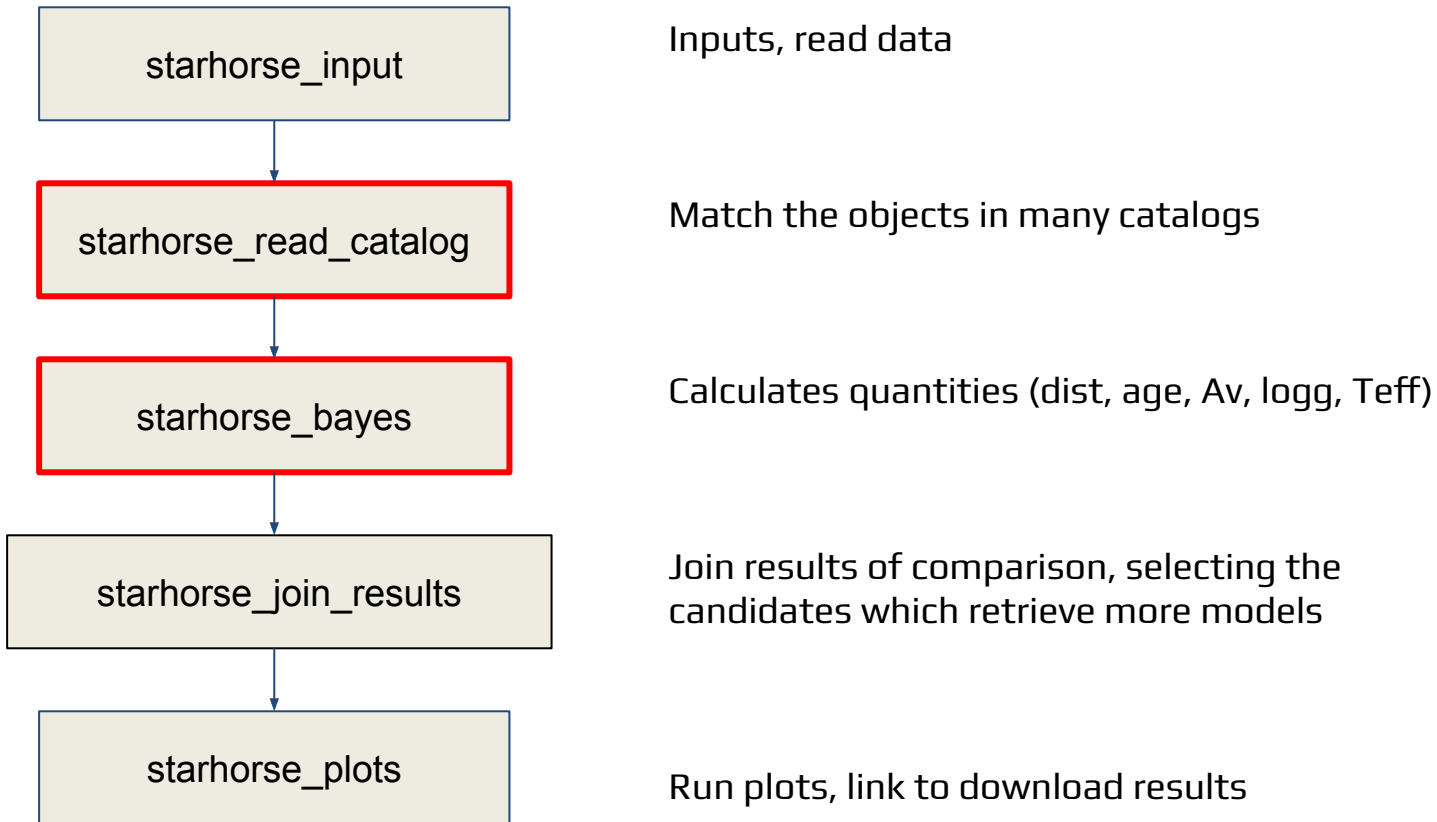
# SparSEx workflow (compute intensive)

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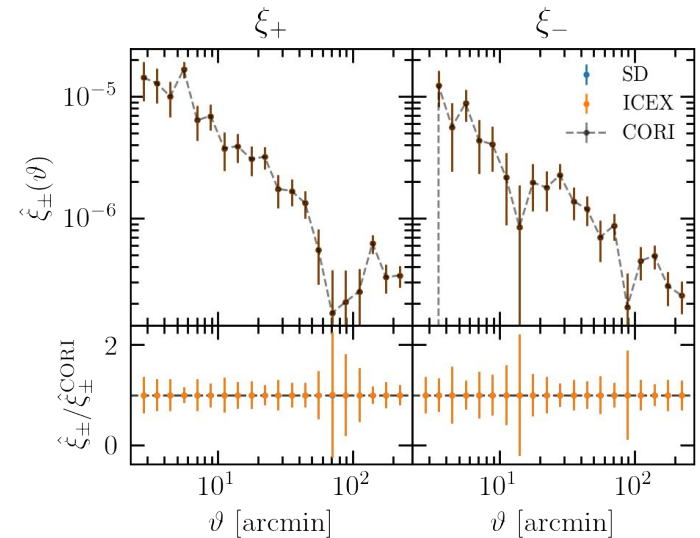
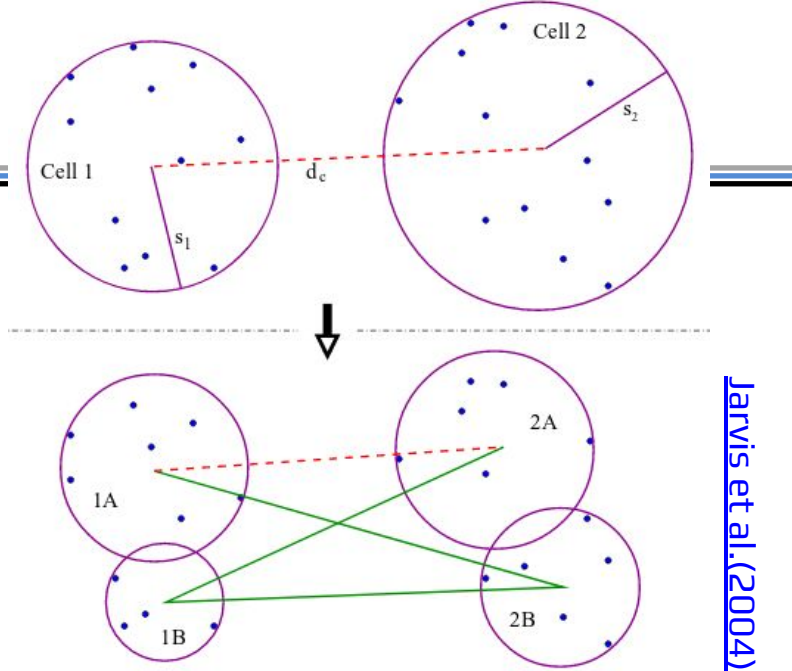
# StarHorse workflow (compute intensive)

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# TreeCorr (compute intensive)

- Efficiently computing 2-point and 3-point correlation functions.
- Basic probes of LSS cosmology.
- Data struct. for complexity reduction  $O(N_1 \cdot N_2)$  to  $O(N_1 + N_2)$ . kd-tree.
- DES-like configurations, high processing, low storage, low memory requirements.
- Well suited for ICE-X and SD.
- Benchmark sources (devel2):  
[/home/hcamacho/trecorr\\_benchmark](/home/hcamacho/trecorr_benchmark)

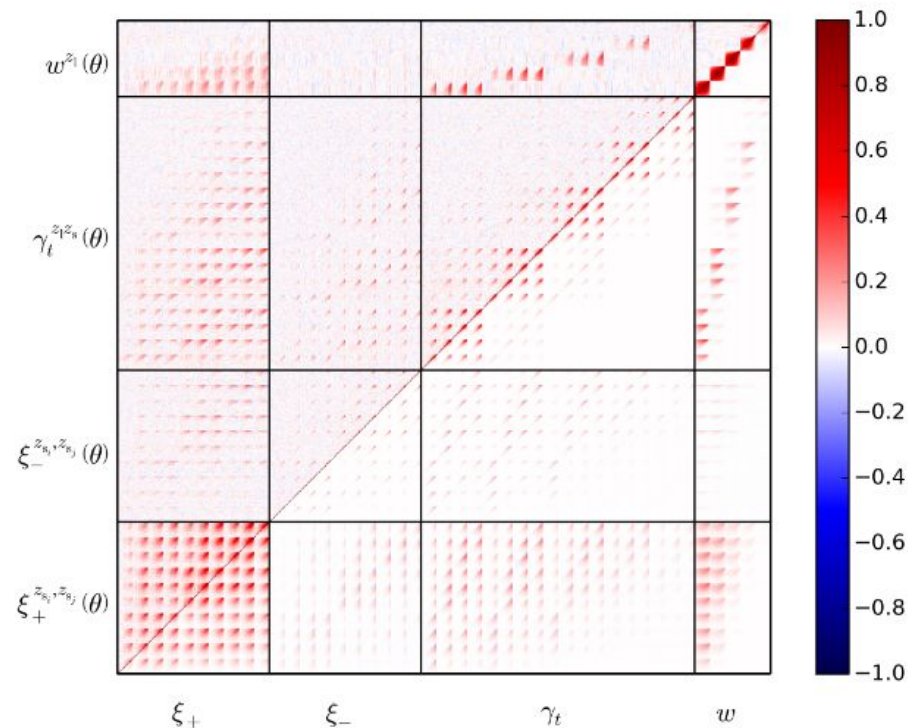


CLUSTER	Max Mem	Nodes	Max Threads	Queue time	Exec. time
CORI	128GB	1	64	00:04:00	00:19:14
SD	64GB	1	24	04:21:00	00:37:27
ICEX	128GB	1	48	00:00:01	00:28:48

# FLASK (data intensive)

- Fast full-sky simulations of tomographic cosmological LSS observables
- **lognormal** (or **Gaussian**) realisations of multiple correlated fields on spherical shells (tomography).
- Useful for **covariance validation** for multi-probe analysis.
- For DES-like configurations, **low processing, high storage, high memory** requirements
- Better suited for **ICE-X**.
- Benchmark sources (devel2):  
[/home/hcamacho/flask\\_benchmark](https://github.com/hcamacho/flask_benchmark)

$$X_i = e^{Z_i} - \lambda_i$$

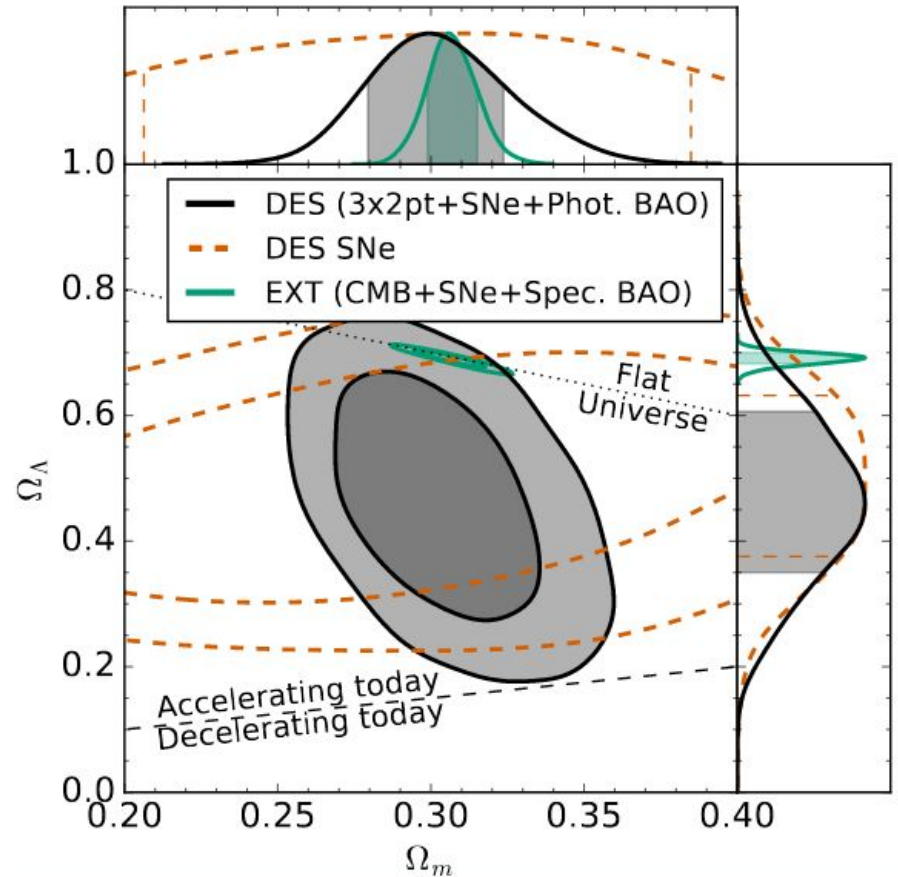


[Krause et al.\(2017\)](#)



# CosmoSIS (compute intensive)

- Framework for structuring cosmological parameter estimation in a way that eases re-usability, debugging, verifiability, and code sharing in the form of modules.
- Distributed mem parallelization **MPI**
- Used for all **multi-probe cosmological analysis** within DES.
- For DES-like running configurations, **high processing**, **low storage**, **low memory** requirements.
- Well suited for ICE-X and SD.
- Benchmark sources (devel2):  
[/home/otavio.alves](https://github.com/otavioalves)



[Abbott et al.\(2019\)](#)

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# Questões

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# Obrigado