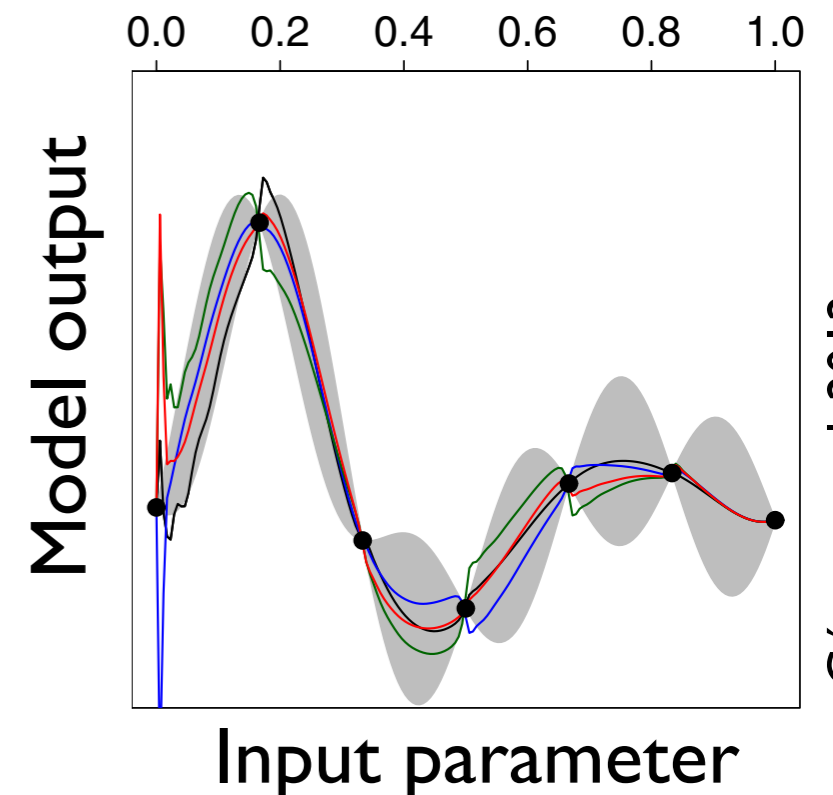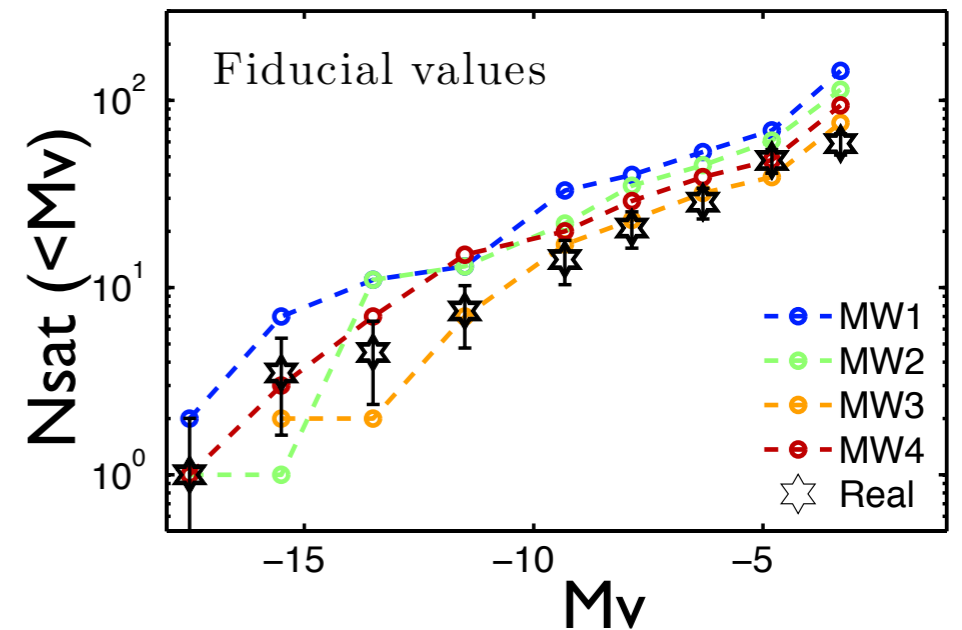# Statistically probing the merger history of the Milky Way with model emulators
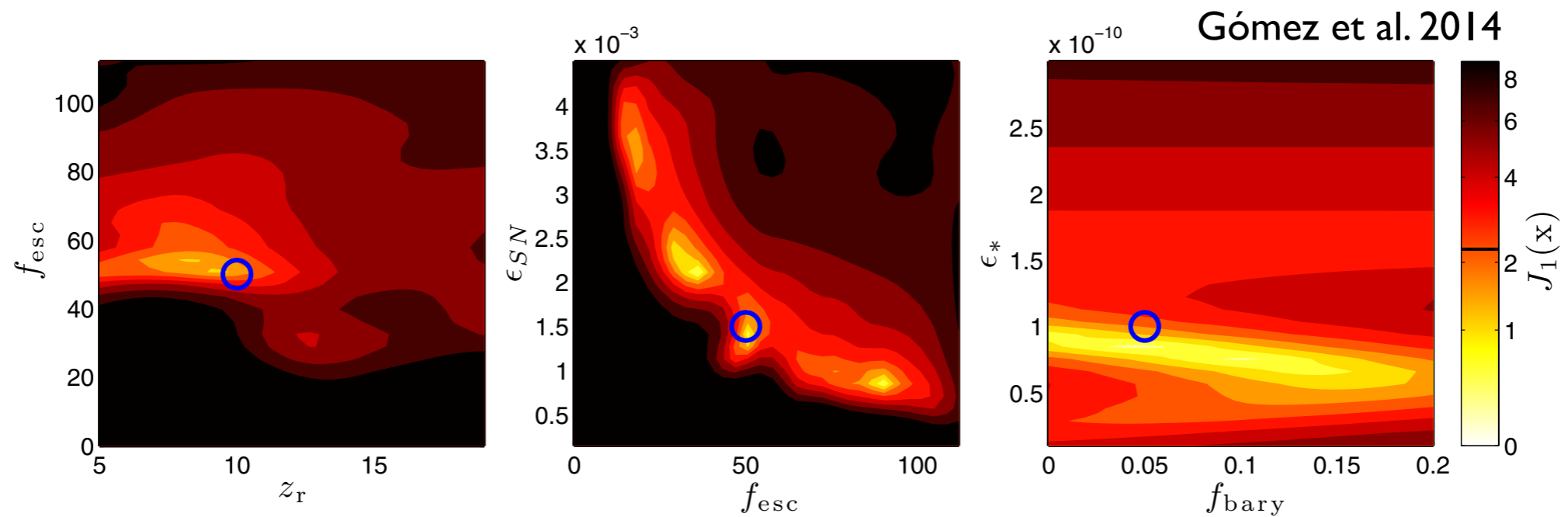
Facundo A. Gómez (MPA),
Christopher E. Coleman-Smith (Duke), Brian W. O'Shea (MSU), et al.
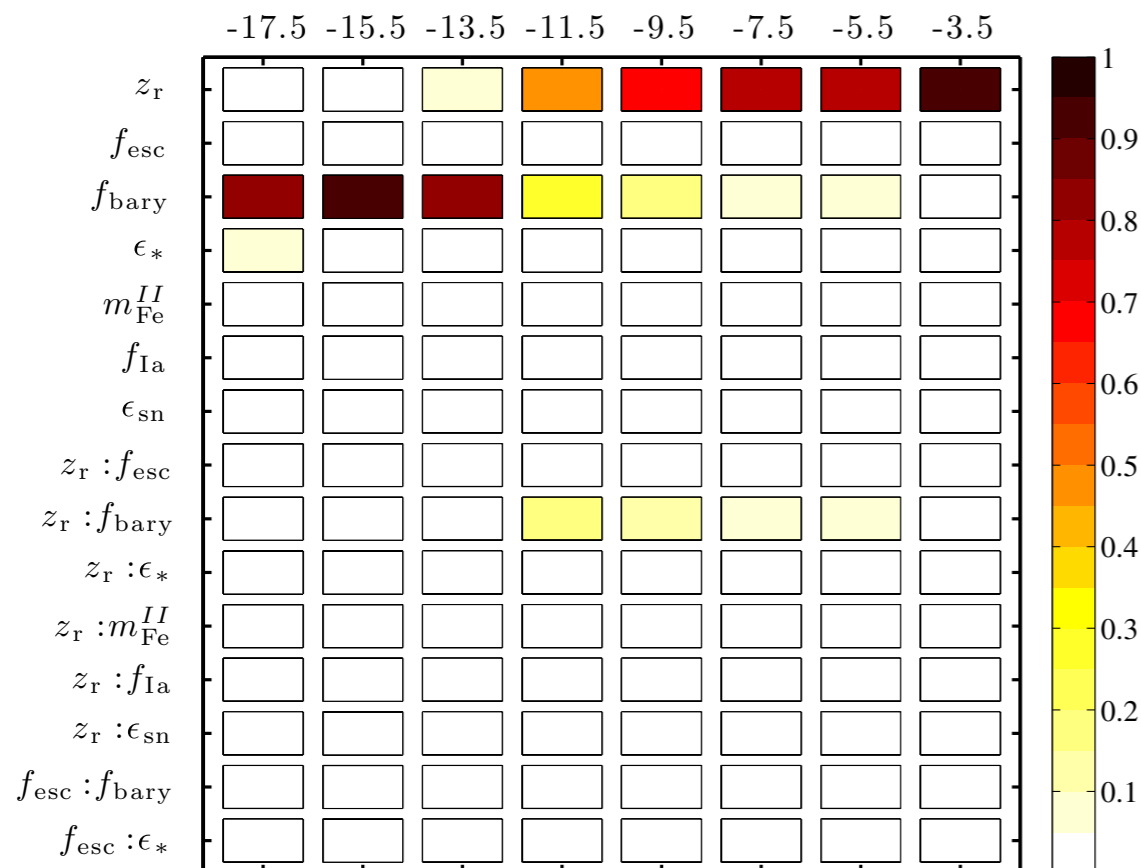
- Semi analytical models must be calibrated

  - Explore full parameter space

  - Each model = a few hours...

- Model emulators

  - Prediction for model outputs at any point in parameter space!

  - Measure of uncertainty

  - Very easy to train

Gómez et al. 2012

Expose and visualize the nonlinear coupling between the parameterization of the different physical processes

Gómez et al. 2014

Analysis of variance decomposition

Gómez et al. 2014

Statistical tools: publicly available
https://madai-public.cs.unc.edu/

If you are interested,
please come and talk to me!