

# Bayesian inference: QGP

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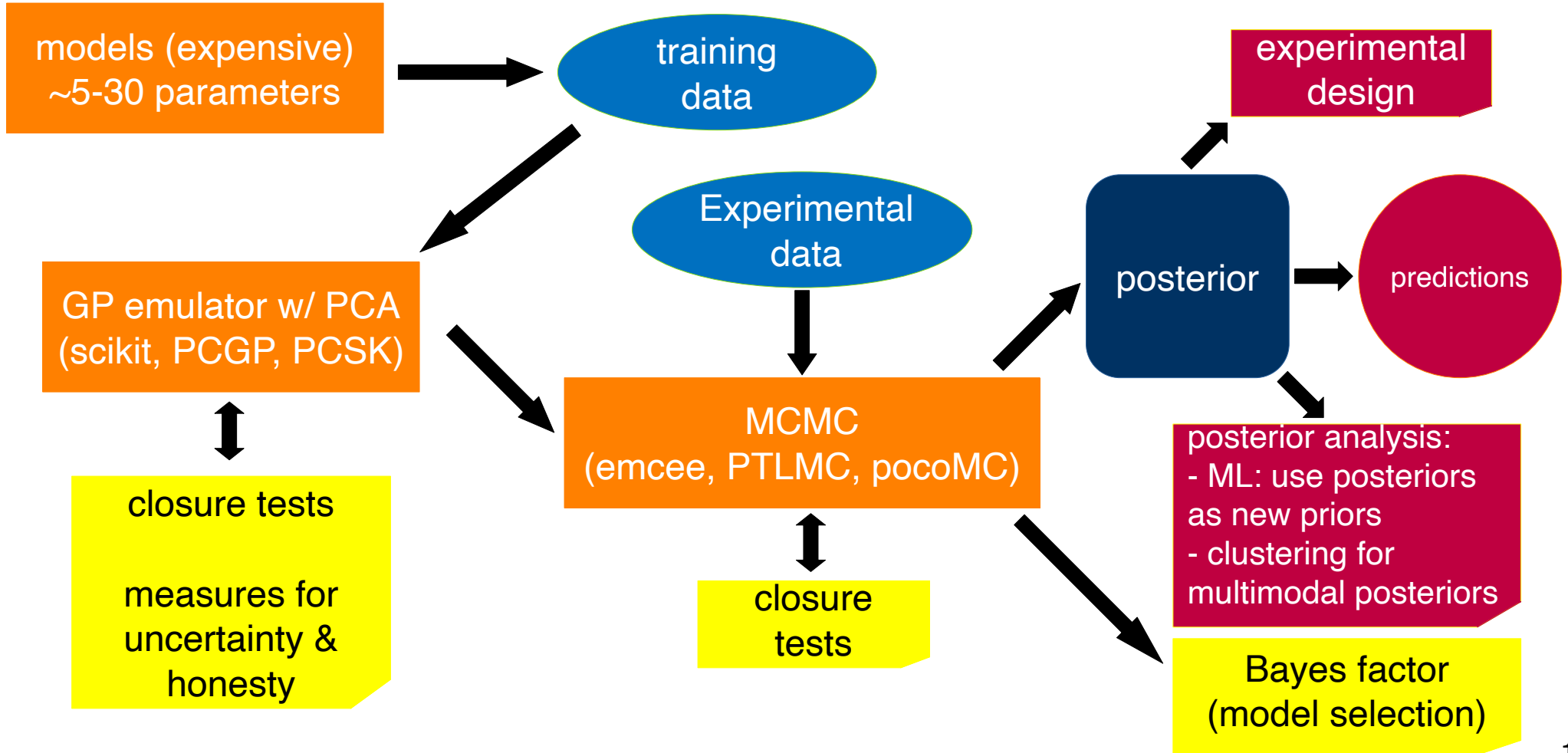
Legend

Codes

Assessments

Posterior

Applications



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models (expensive)  
~5-30 parameters

training data

Experimental data

GP  
(sc)

- Forward model **cost depend on physics processes** of interest
- Usually **O(millions) core-hours over entire design parameter space**
- Critical: **selection of design points**

measures for uncertainty & honesty

MC  
MC, pccoMC)

closure tests

posterior

experimental design

predictions

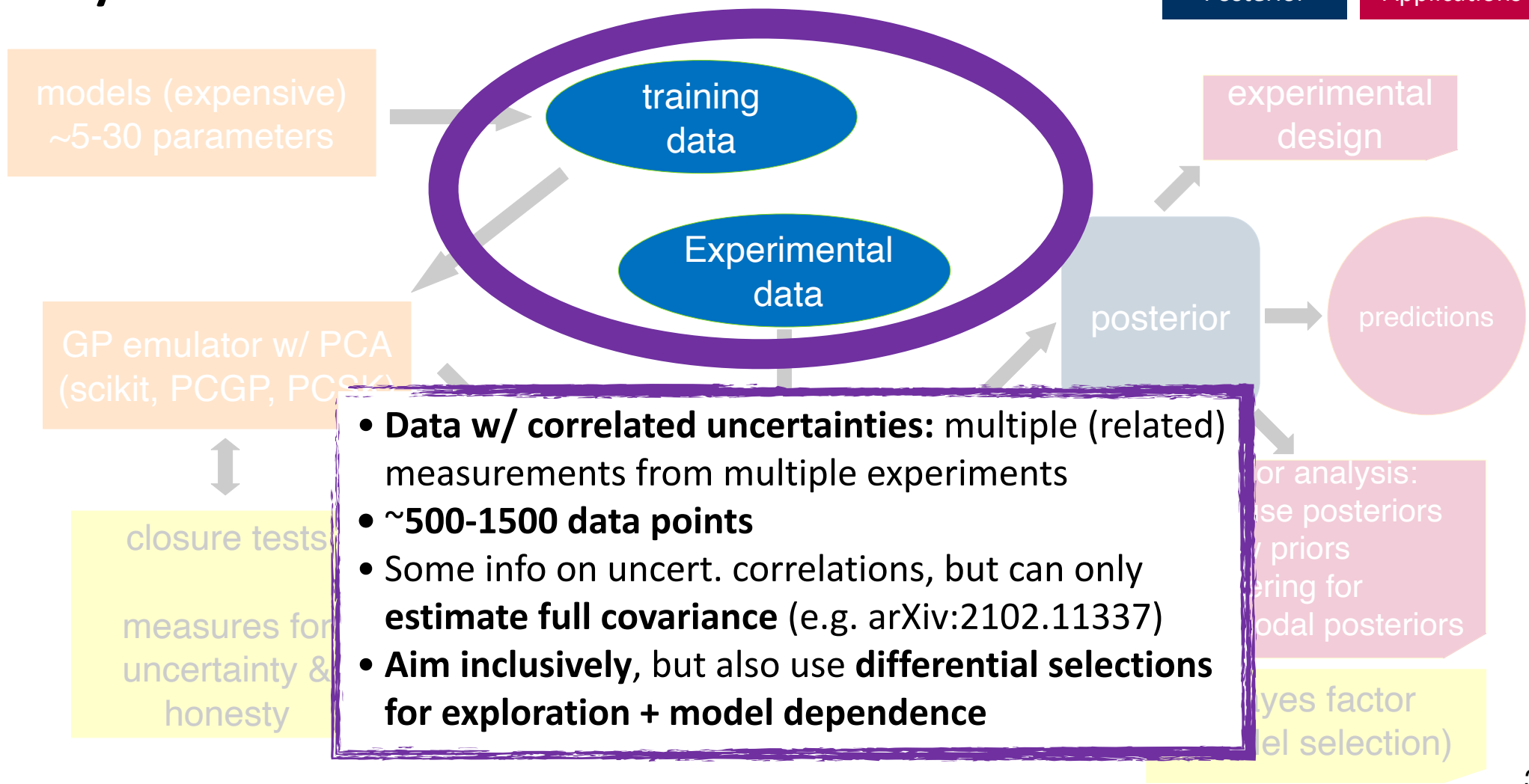
posterior analysis:  
- ML: use posteriors as new priors  
- clustering for multimodal posteriors

Bayes factor  
(model selection)

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# Bayesian inference: QGP

models (expensive)  
~5-30 parameters

training  
data

Experimental  
data

- So far, predominately **standard/untuned packages**
- Compute time usually not prohibitive:
  - GP: (~seconds)
  - MCMC: (~hours-day)

GP emulator w/ PCA  
(scikit, PCGP, PCSK)

closure tests

measures for  
uncertainty &  
honesty

MCMC  
(emcee, PTLMC, pocoMC)

closure  
tests

posterior

predictions

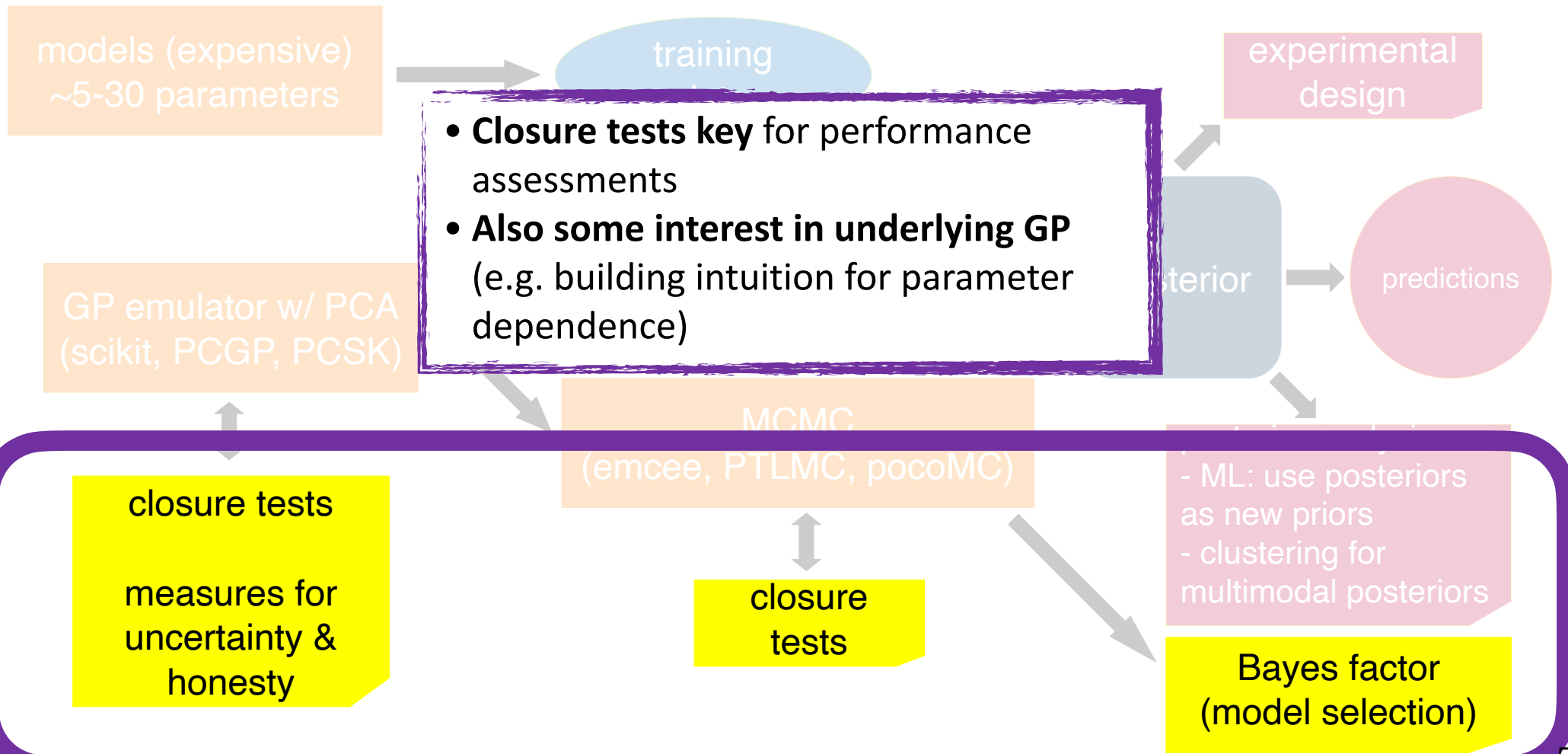
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