

# MILC Gauge Ensembles

Steven Gottlieb (Indiana University)  
for the Fermilab Lattice and MILC Collaborations

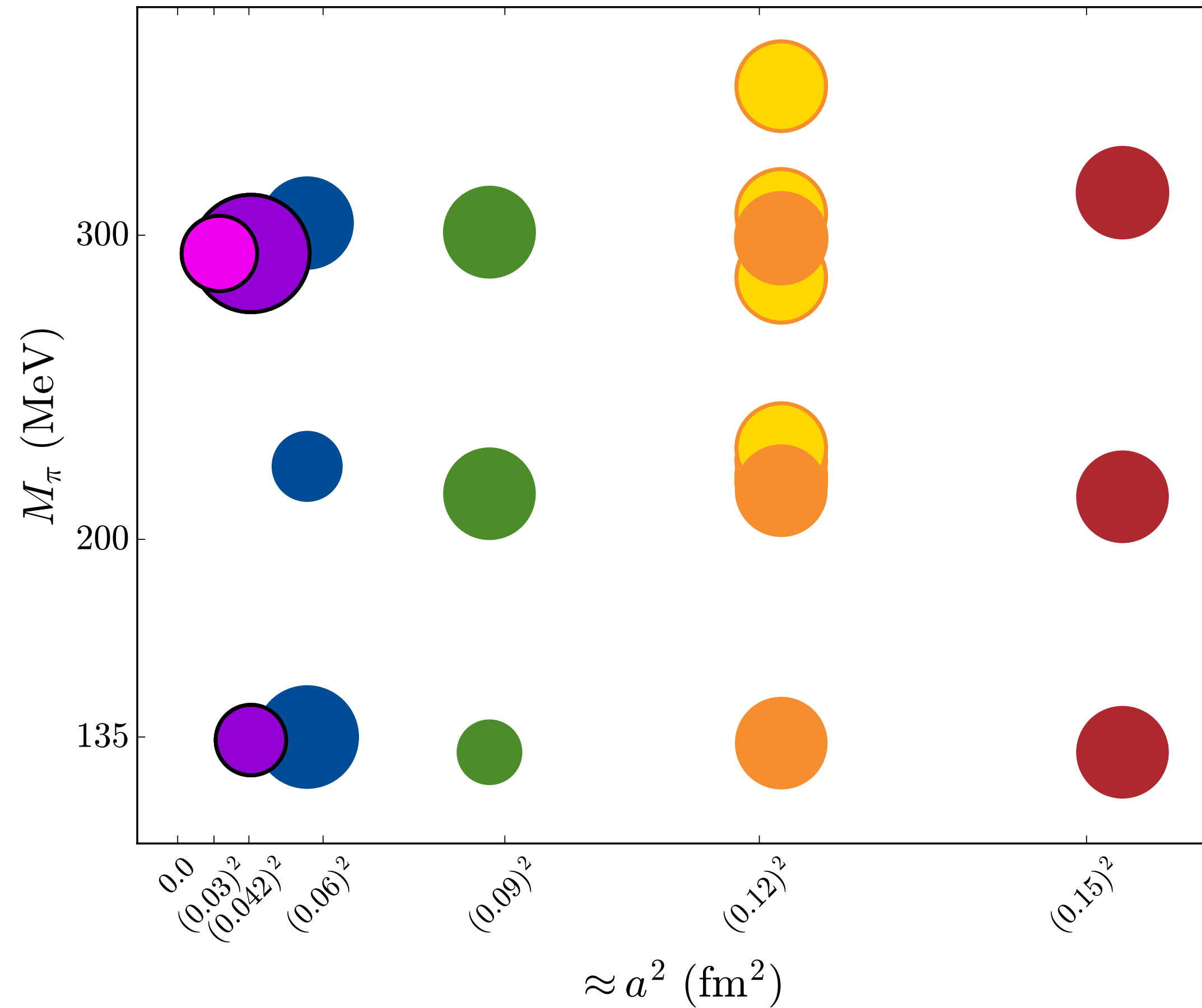


# Background

- MILC has been sharing configurations for over two decades
  - Initial users of Gauge Connection at NERSC
- Extensive set of ensembles with the asqtad action, now primarily at FNAL
- Still generating ensembles with HISQ action
  - 0.15, 0.12, 0.09, 0.06, 0.042, 0.03 fm
  - for the finest lattice spacing no physical mass ensemble yet (waiting for exascale computers)

# Information on Web

- MILC has a github page with documents related to sharing policy
  - sharing policy
  - list of available ensembles
  - how to acknowledge use of ensembles
- Twenty five HISQ ensembles are freely available.
  - Many on disk at FNAL, easily accessible to USQCD members
  - Gauge Connection at NERSC is moribund
  - Contact us if you need help
- Also see slides from Lattice 2022 at Bonn



# Overview of MILC HISQ ensembles

This plot is out of date but still of some use. Includes some nonpublic ensembles, does not always reflect current statistics.

# Recent and Upcoming

- We've added half a dozen (0.09, 0.06 fm) ensembles with lighter than physical strange quarks
- Our original 0.09 fm physical mass ensemble was not well tuned.
  - CalLat started a retuned ensemble and we extended it. It is being further extended.
  - We added a larger volume
  - l6496f211b630m001326m03636m4313, l12896f211b630m001326m03636m4313
- Our next big challenge is physical mass 0.03 fm:
  - l192384f211b728m000415m01129m1329
- Other ensembles may be extended if better statistics are needed