

Summary and outlook for M spectroscopy at HiMB

2 ORDERS of magnitude larger **FLUX** with a better (sub **mm**) defined beam

LASER TRANSITIONS

- **1S-2S**: CURRENT AIMED ACCURACY FROM 10 kHz → **1kHz**

OUTPUT: muon mass (see Klaus's talk)/test of NP (see Yotam's talk)/ Rydberg constant

- **NEW LASER TRANSITIONS** SUCH AS 2S-8D WOULD BE POSSIBLE (see Dylan's talk)

OUTPUT: b-QED test

RF TRANSITIONS

- **LAMB SHIFT**: CURRENT MEASUREMENTS @LEM 7 MHz (2020) and projected 1 MHz (2020) → 10 kHz and **FINE STRUCTURE** (AS BYPRODUCT) → 100 kHz (see Ben's talk)

- OUTPUT: test of NP, at kHz level would start testing recoil corrections

- **HFS in vacuum** (no need for extrapolation to 0-density as for in gas), reach. to be studied (see Klaus's talk)

HiMB WOULD GREATLY EXPAND THE PHYSICS REACH OF Mu-MASS

<https://www.psi.ch/en/ltp/mu-mass>

