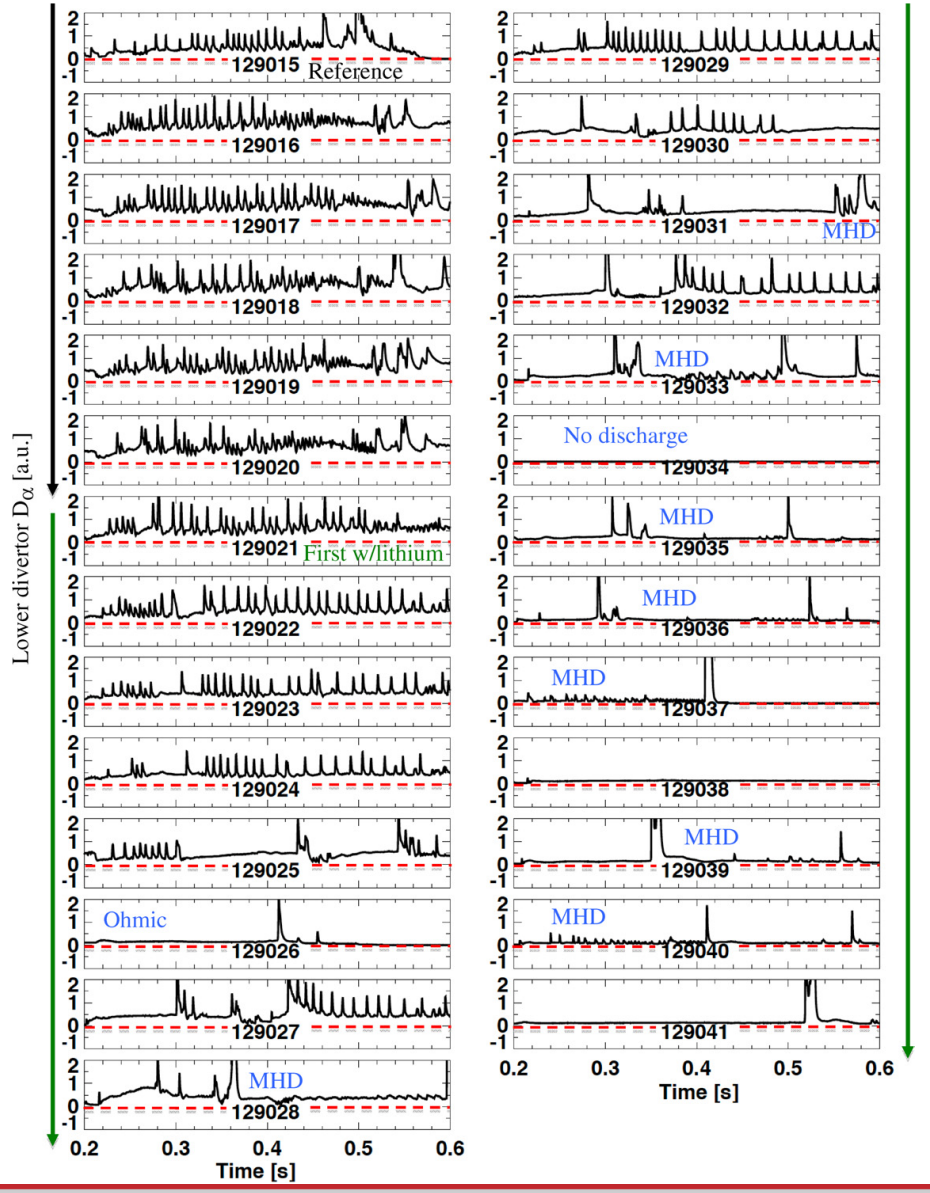
# B to Li Transition in NSTX-U

- Likely operational issues with Li based on past experiences:
  - Increased fueling to avoid locked modes
  - $\beta_N$ limits
  - ELM elimination leading to Carbon Accumulation
- How best to introduce new Li sources?
  - Evaporation into lower divertor from LiTERs (NSTX standard)
  - When is upward evaporator available and introduced?
  - Li Granule Injector?



# Needed[?] XPs before Li Introduction

- Commissioning XMPs:
  - Strike point control
  - BetaN control
  - drsep control
- Early Run (B only operation)
  - SOL Power balance with B vs Li
  - Fueling Optimization and Scan with and without Li
    - Increased CS fueling has historically been required when using Li evaporation
    - Baseline machine performance with boron in a variety of plasma shapes and fueling scenarios we're likely to encounter with Li
  - Leading edge power fluxes ITPA (DSOL-31)
    - Eases IR interpretation with out Li
    - Regular (eg - boronized), ELMy discharges would be ideal
    - Inform high-Z operation w/o Li
  - Asymmetries between inner and outer strike point ELM power loading (DSOL-35)
    - B and Li
- Other XPs that would benefit from no Li operation or comparison with no Li baseline shots?

# Can expect variety of changes to plasma performance as Li is introduced based on past experiences

- Collaboration among divertor diagnostics to measure divertor response to Li is essential during Li introduction

- Li introduction XP should be NSTX-U team XP
  - Simultaneously capture edge, pedestal and core measurements
  - How best to introduce Li into NSTX-U?
  - Which diagnostics are important?
  - Which plasma control algorithms are important?