Run Group C
Summer2022 Pass1 $P_b P_t$

April 16th 2024

Rough Outline

- Using previous dilution factors **d(x,Q^2)** from cooked [CH2, CD2, Empty, C] data
- Calculate PbPt using (x,Q^2) dependent forms of **d** and **A_LL** (provided by Sebastian)
- Counts are normalized by the FCupGated in the **sidisdvcs** trains per run

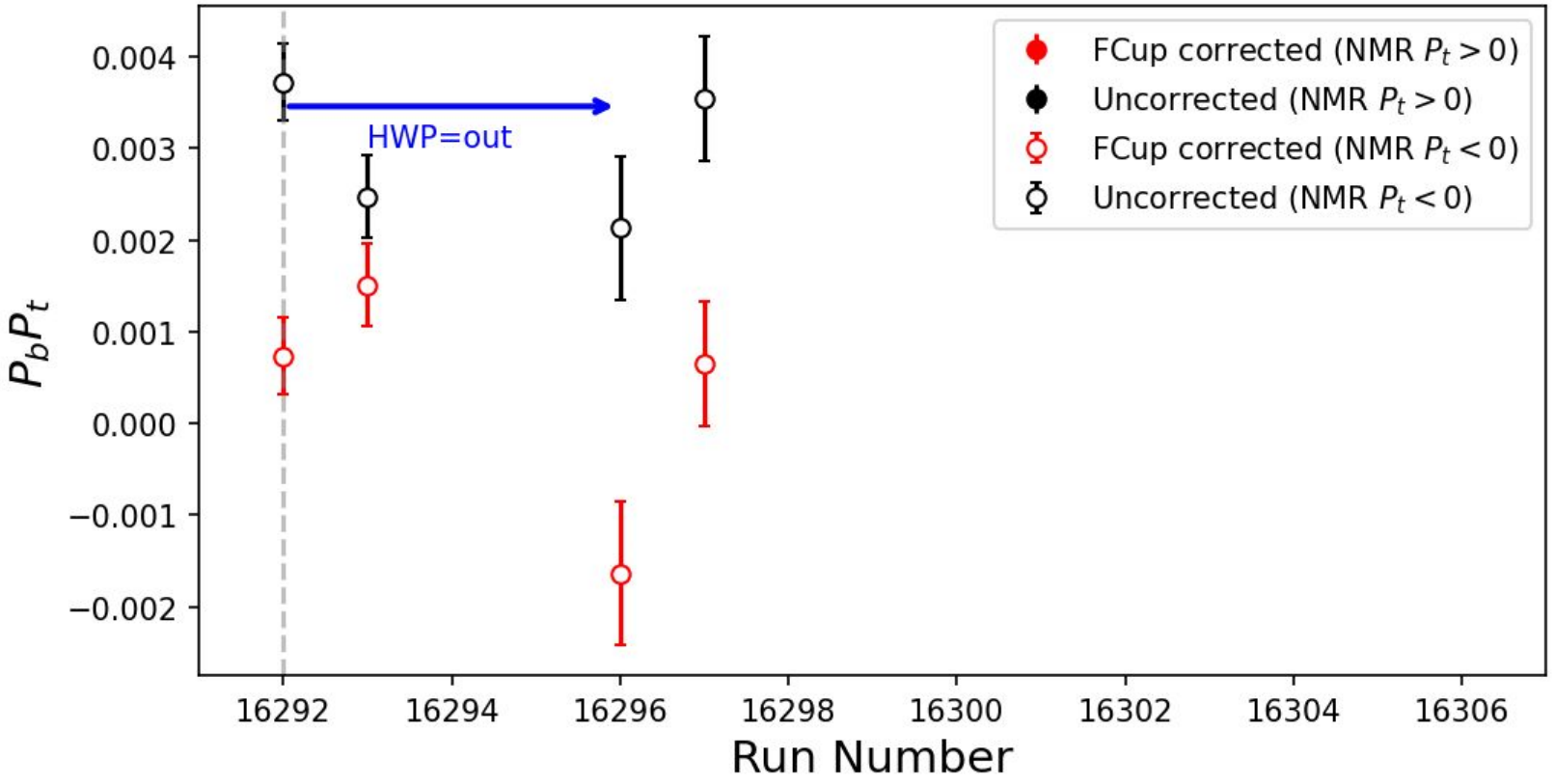
```
# Loop over each bin
for i in range(len(dilution)):
    _counts_antiparallel = ufloat(counts_antiparallel[i], counts_antiparallel_err[i])
    _counts_parallel     = ufloat(counts_parallel[i], counts_parallel_err[i])
    _dilution            = ufloat(dilution[i],dilution_err[i])
    _A_theory            = A_theory[i]
    if np.isnan(_A_theory):
        continue
    try:
        numerator+=(_counts_antiparallel - _counts_parallel) * _A_theory * _dilution
        denominator+=(_counts_antiparallel + _counts_parallel) * _A_theory * _A_theory * _dilution * _dilution
    except:
        continue # Sometimes _A_theory is empty, so we skip these from the calculation

PbPt = numerator/denominator
```

For **Carbon** , the **A_theory** and **dilution** are set to **1** so that the **PbPt** graphs for carbon can be interpreted as the normalized count asymmetry

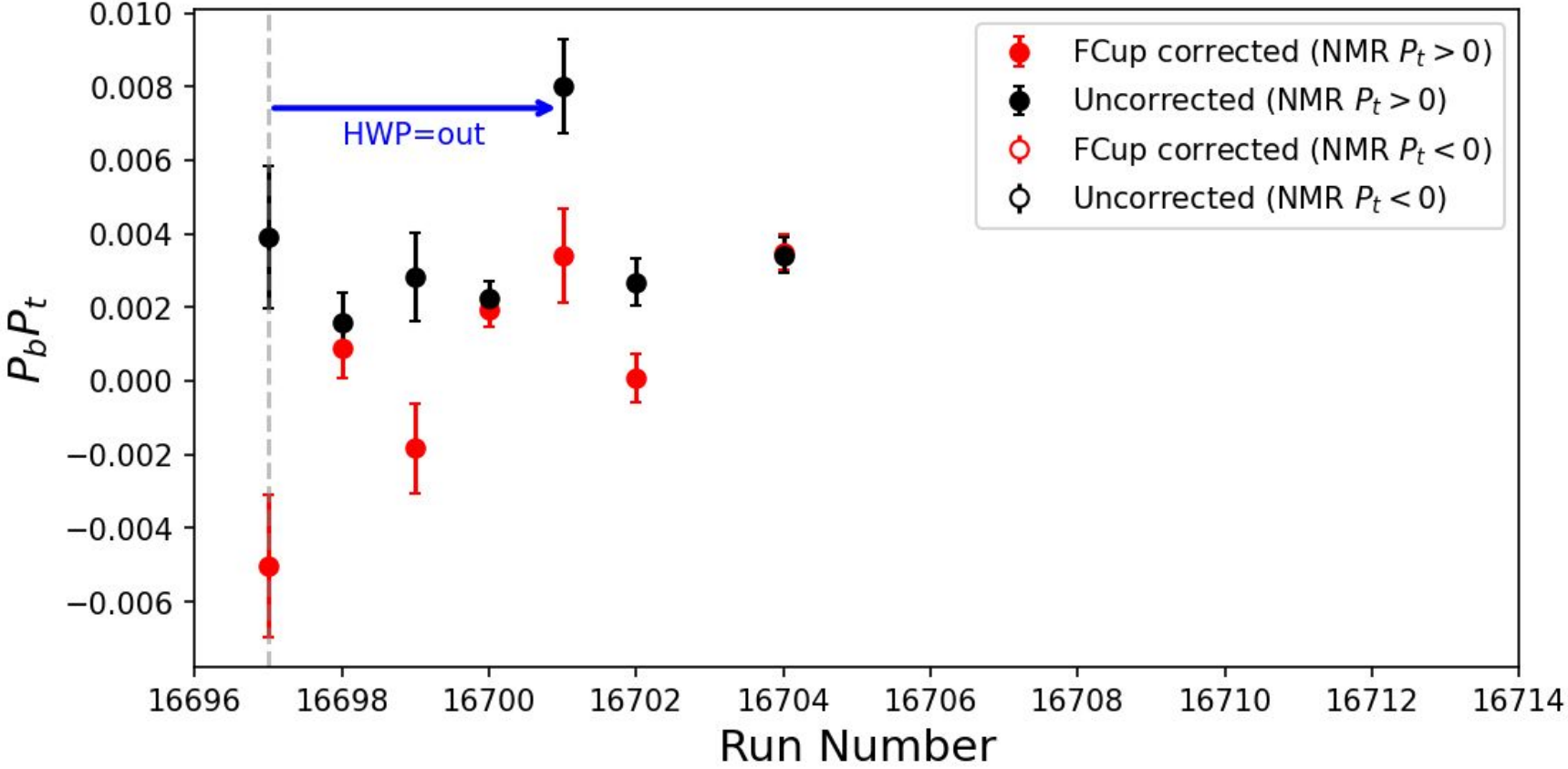
C

For **Carbon** , the **A_theory** and **dilution** are set to **1** so that the **PbPt** graphs for carbon can be interpreted as the normalized count asymmetry

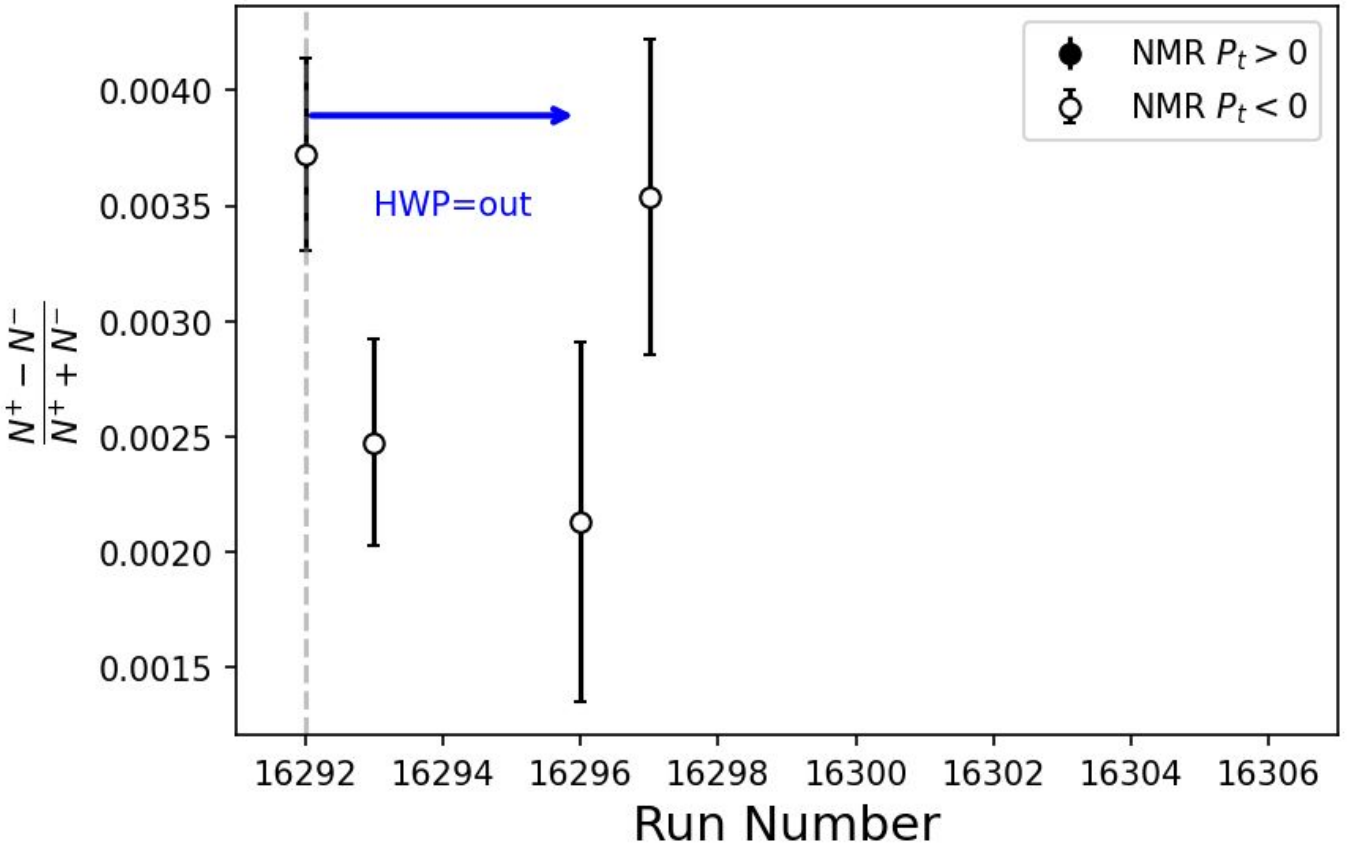
Carbon Target Polarization (1/2)



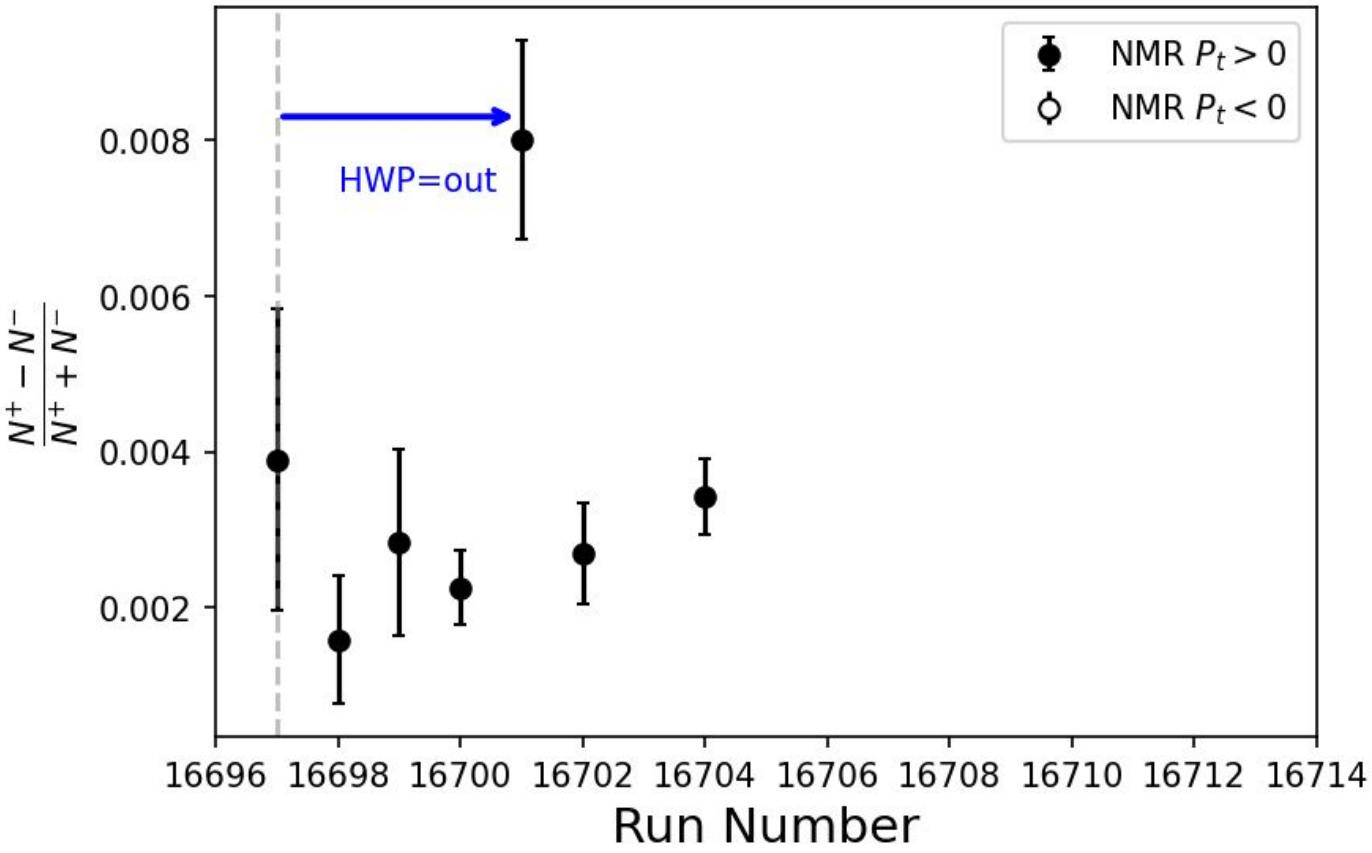
Carbon Target Polarization (2/2)



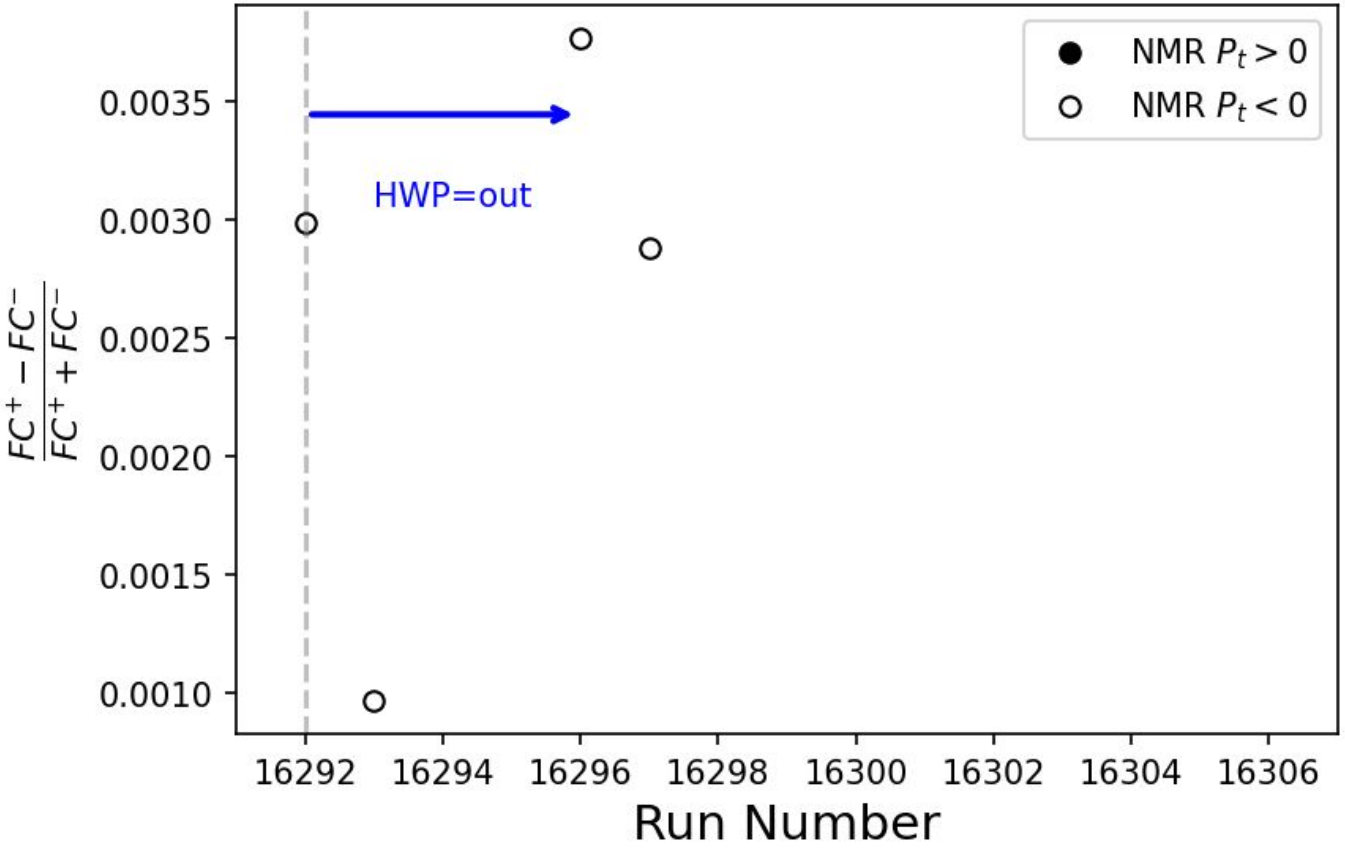
Carbon Count Asymmetry (1/2)



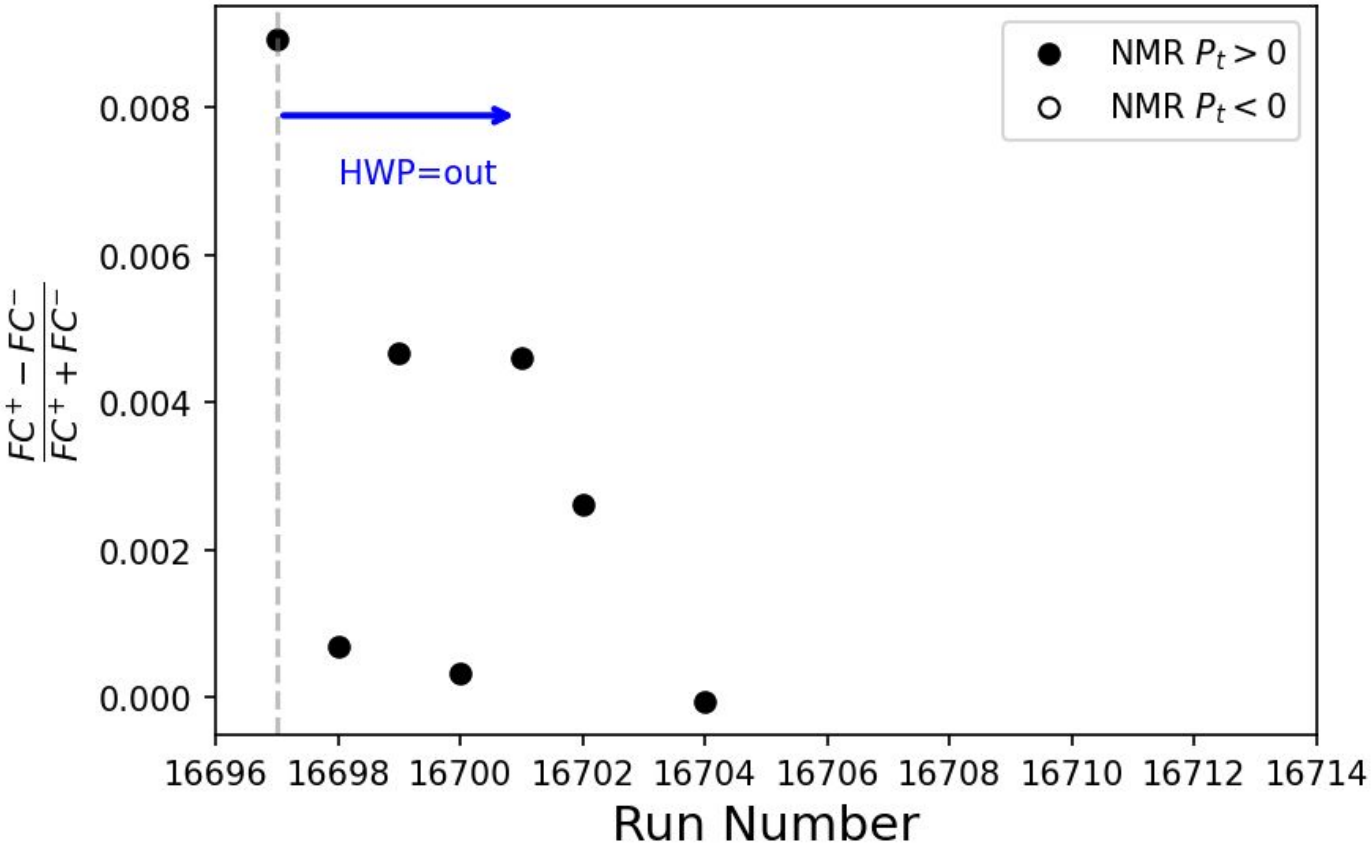
Carbon Count Asymmetry (2/2)



Carbon FCupGated Asymmetry (1/2)

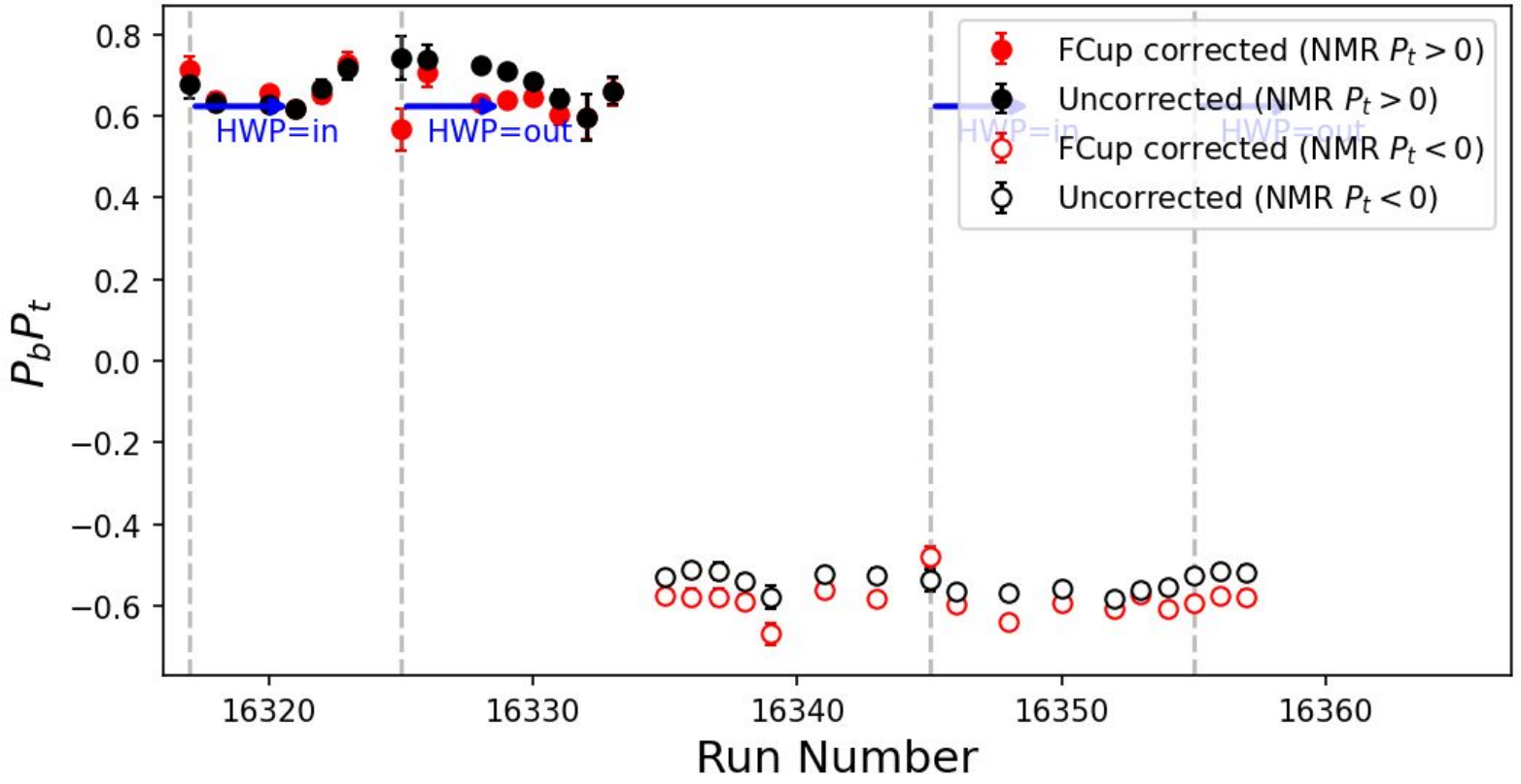


Carbon FCupGated Asymmetry (2/2)

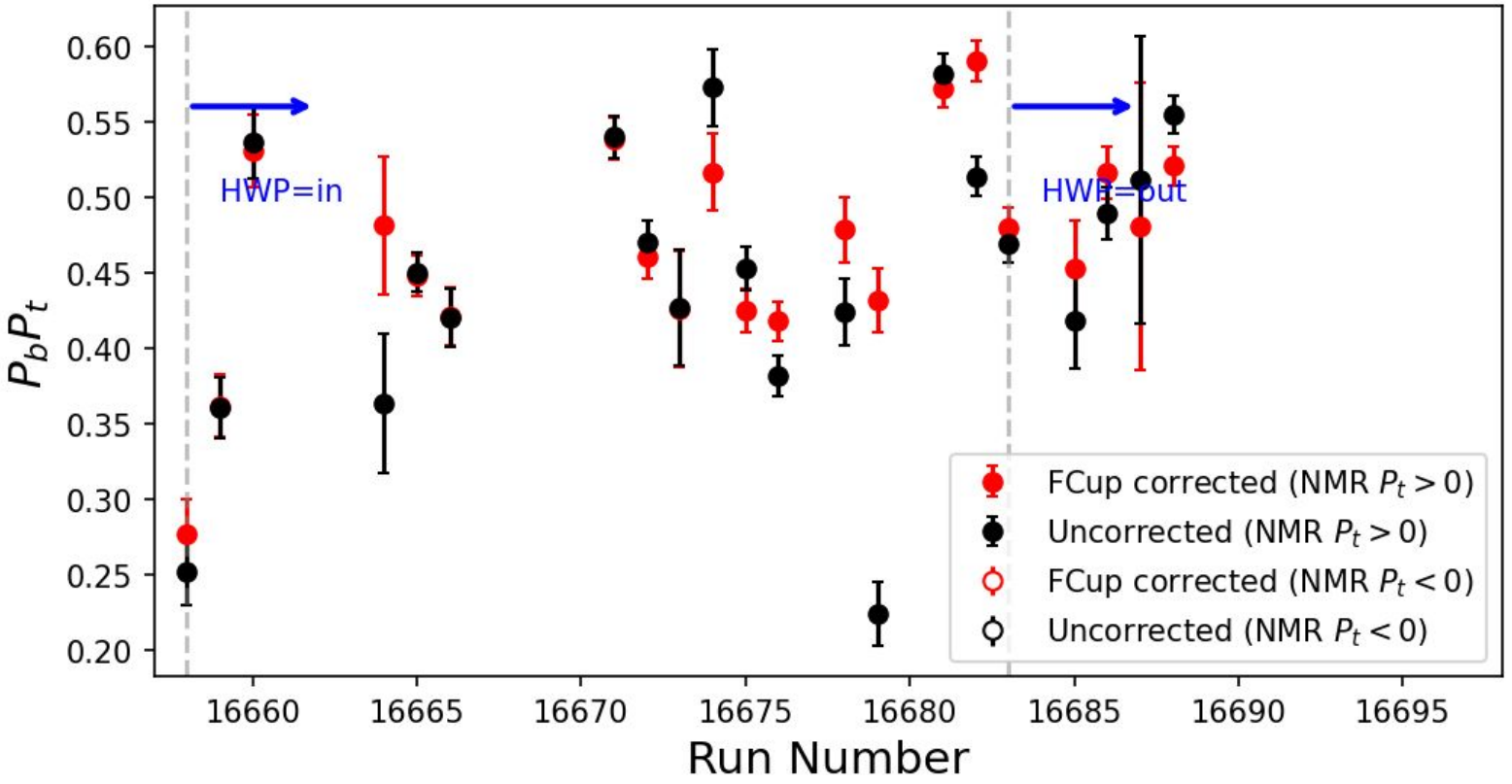



NH3

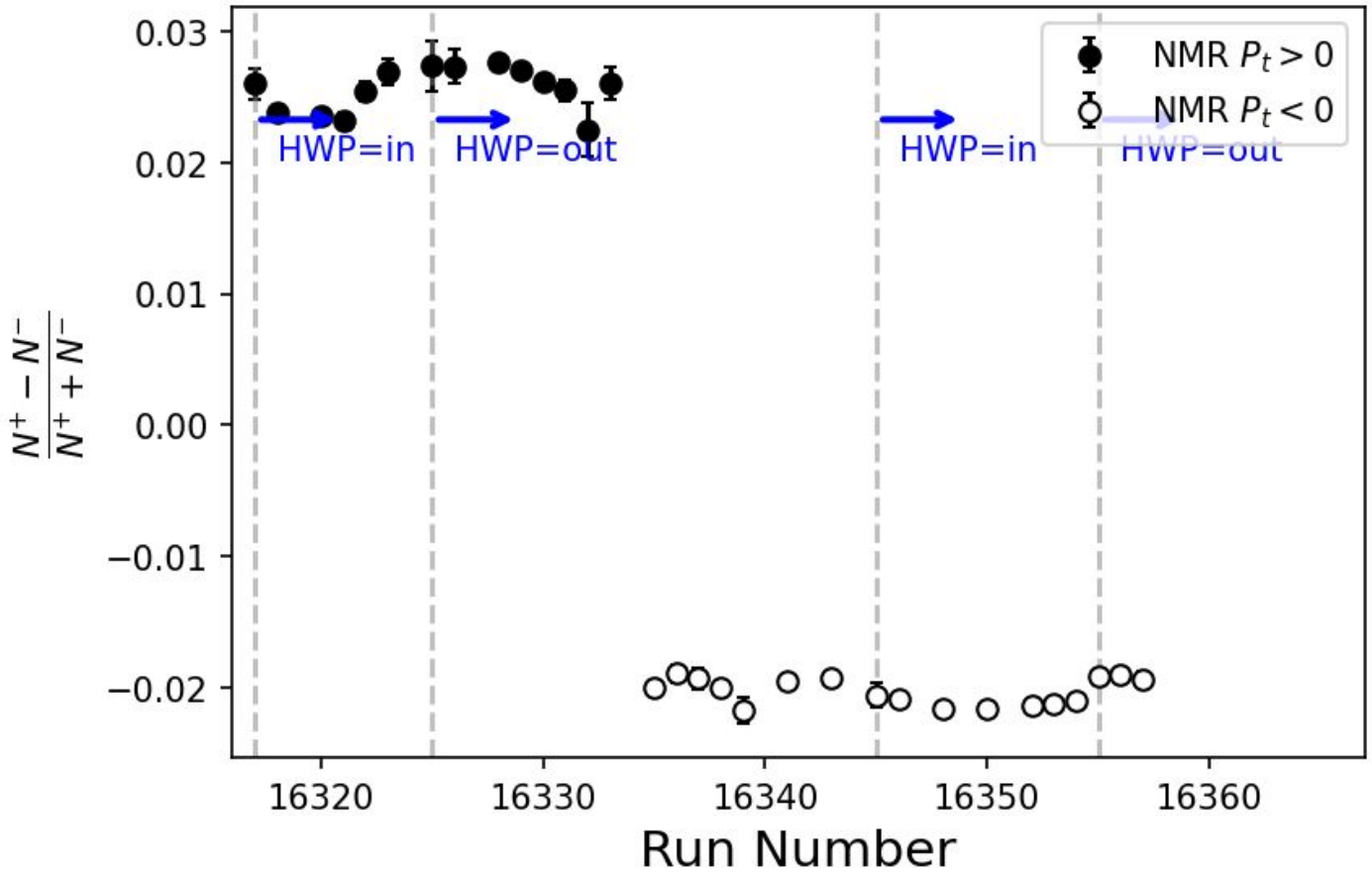
NH3's Target Polarization (1/2)



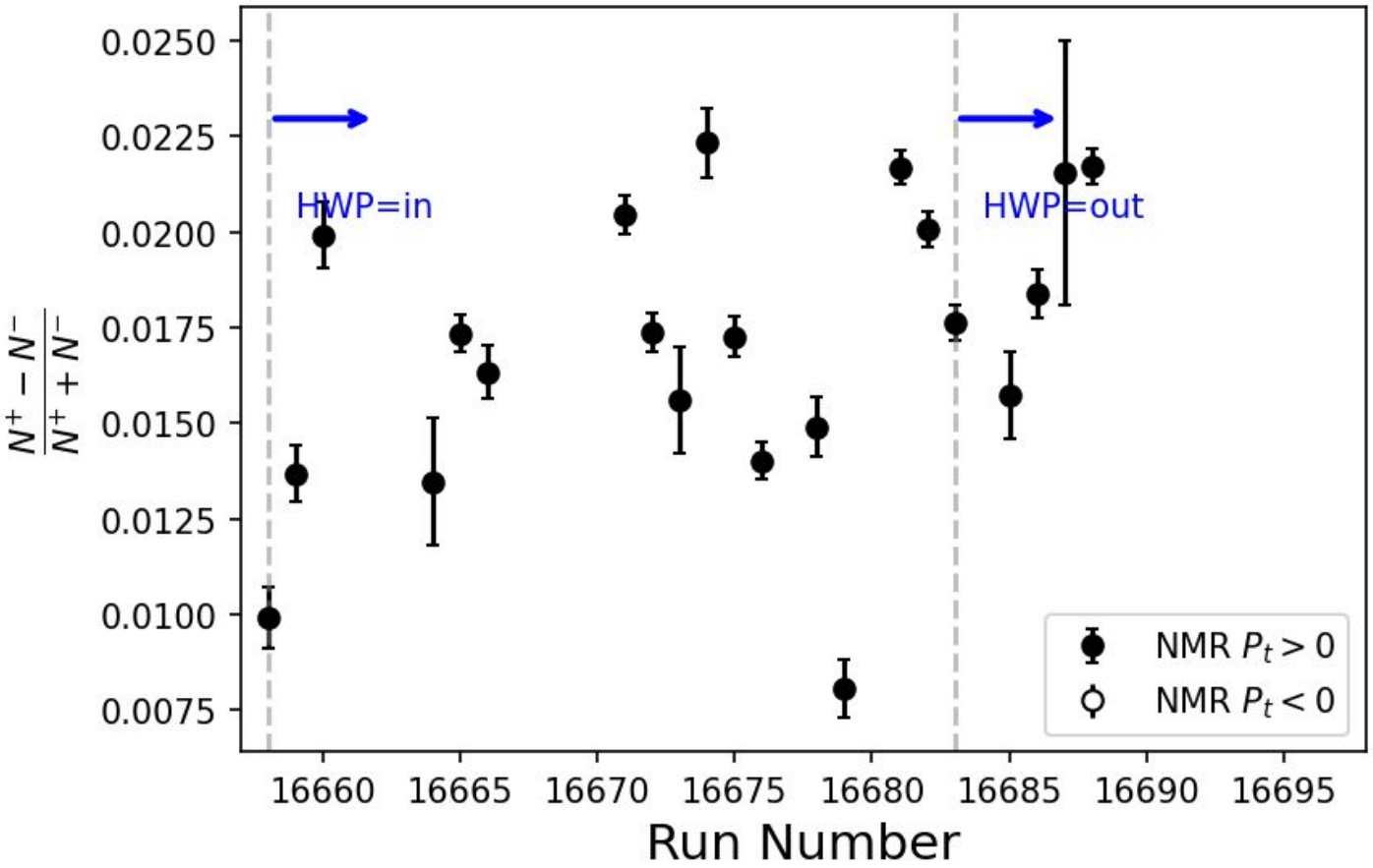
NH3's Target Polarization (2/2)



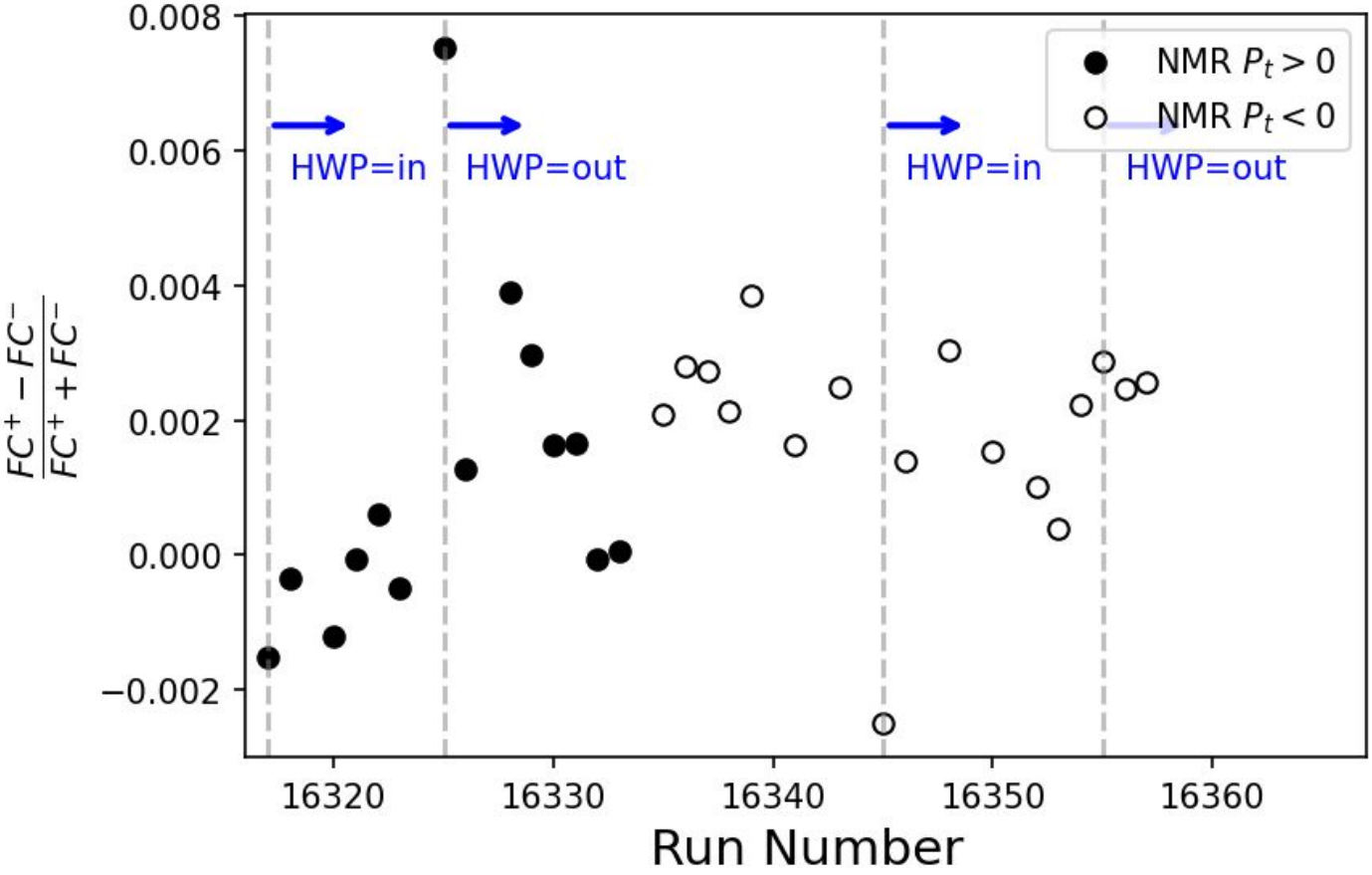
NH3's Count Asymmetry (1/2)



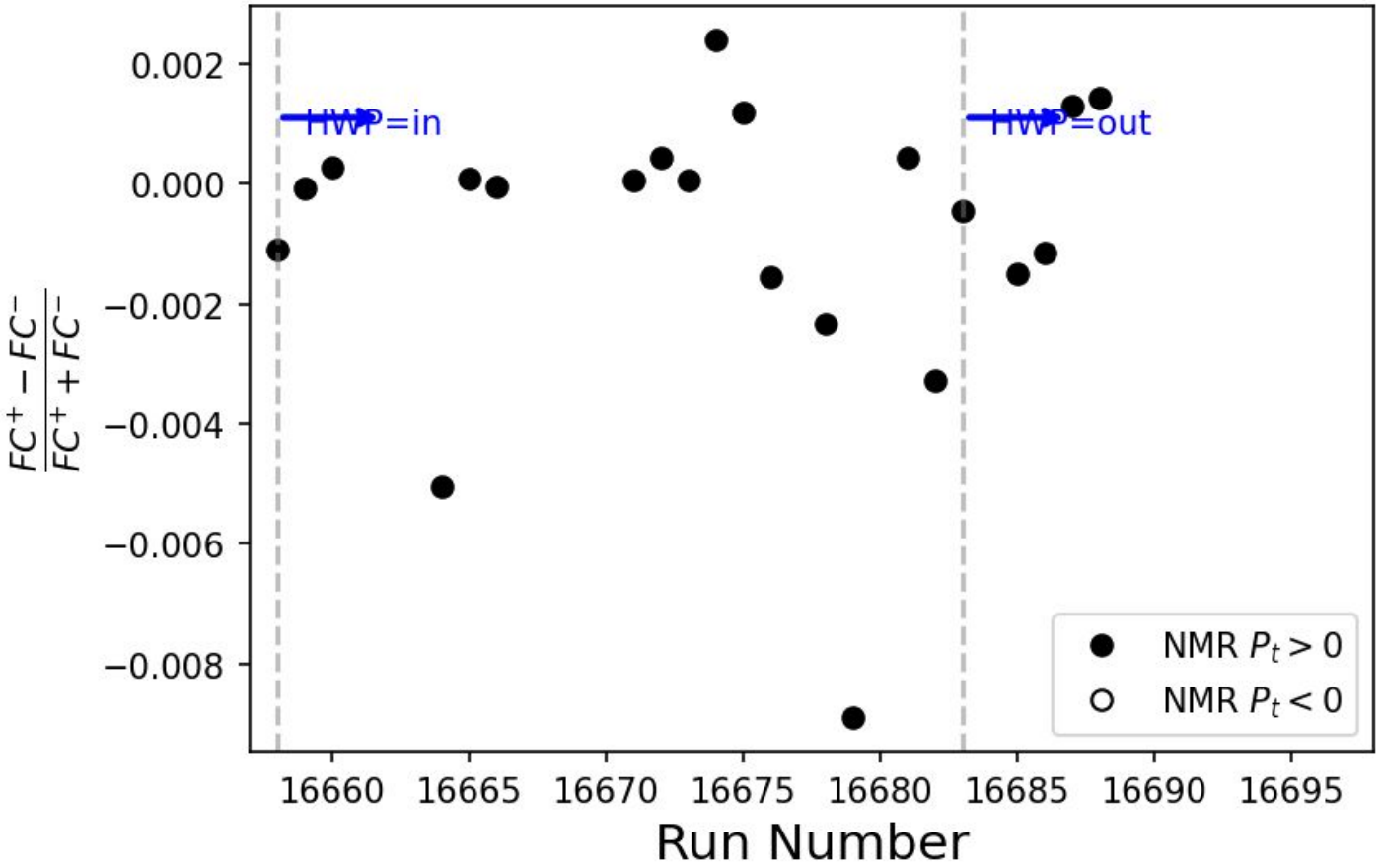
NH3's Count Asymmetry (2/2)



NH3's FCupGated Asymmetry (1/2)

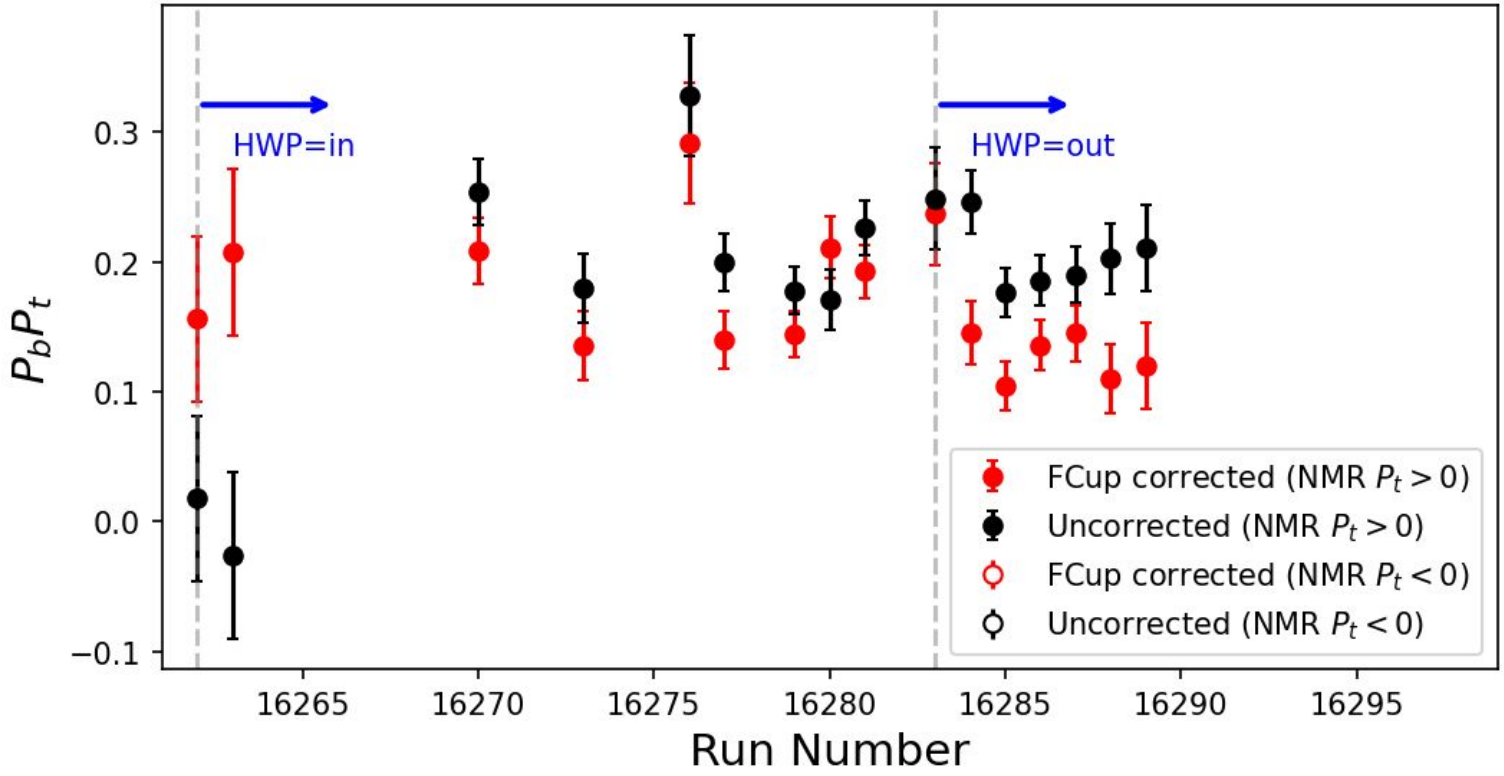


NH3's FCupGated Asymmetry (2/2)

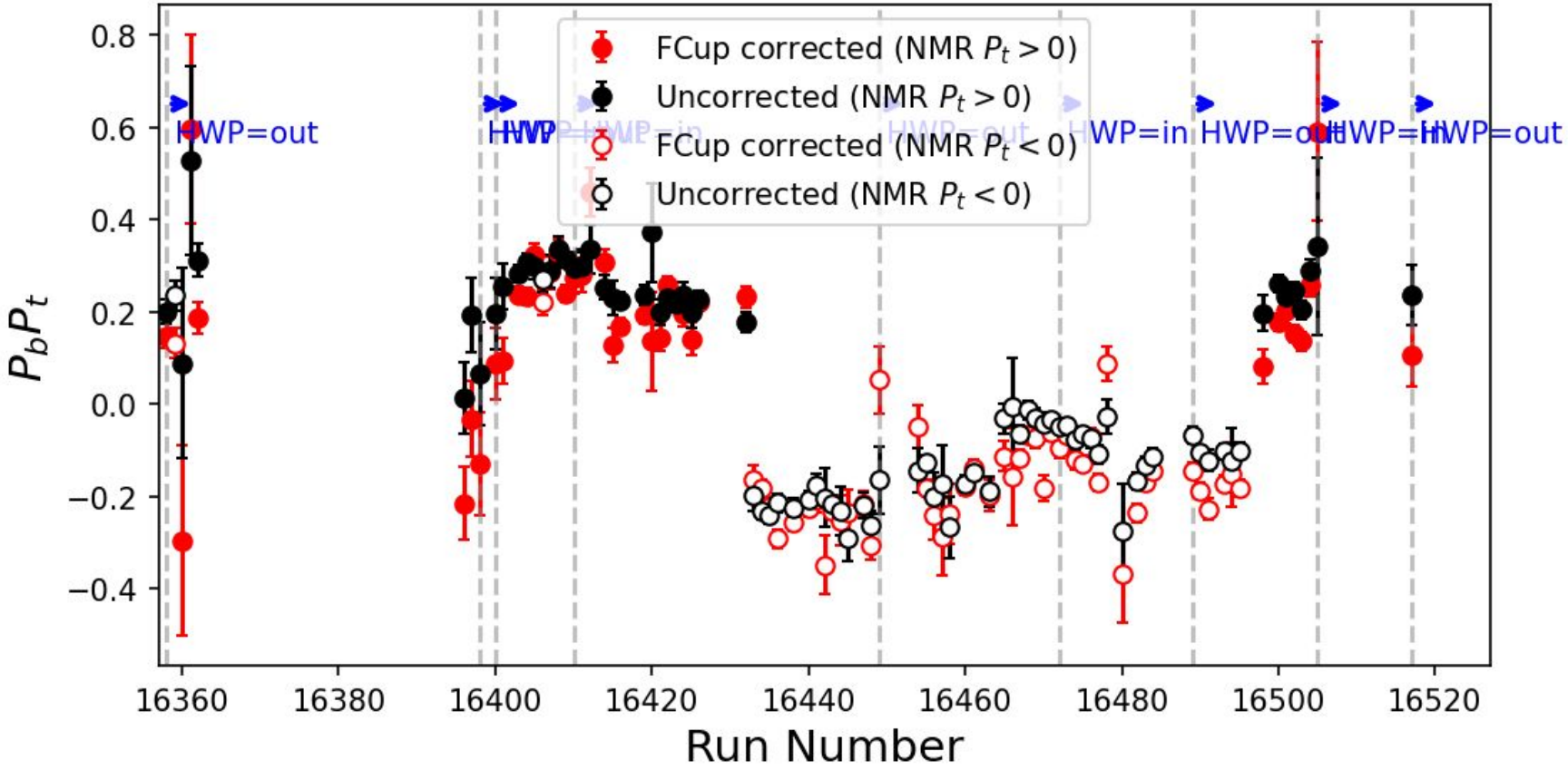


ND_3

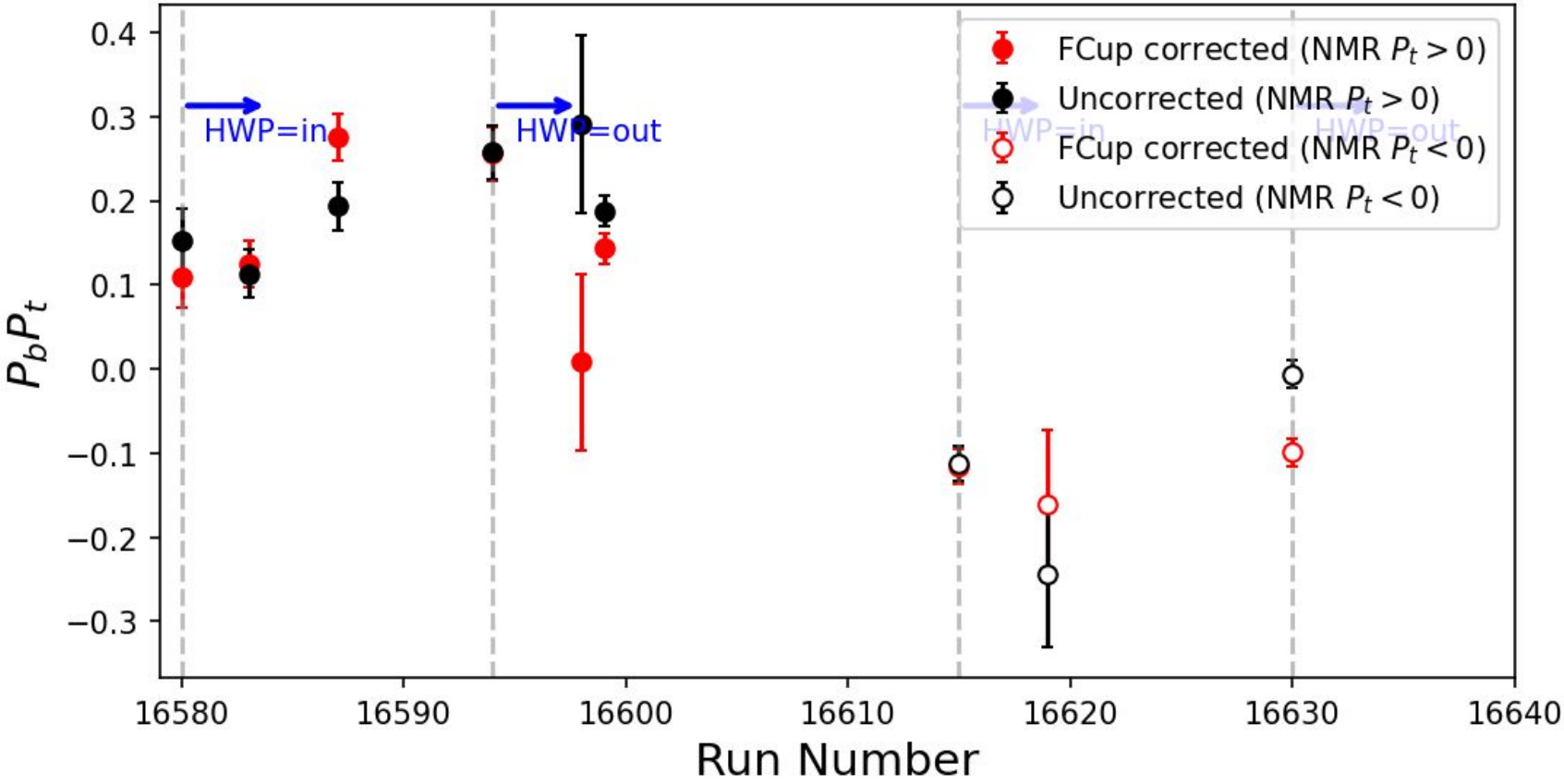
ND3's Target Polarization (1/3)



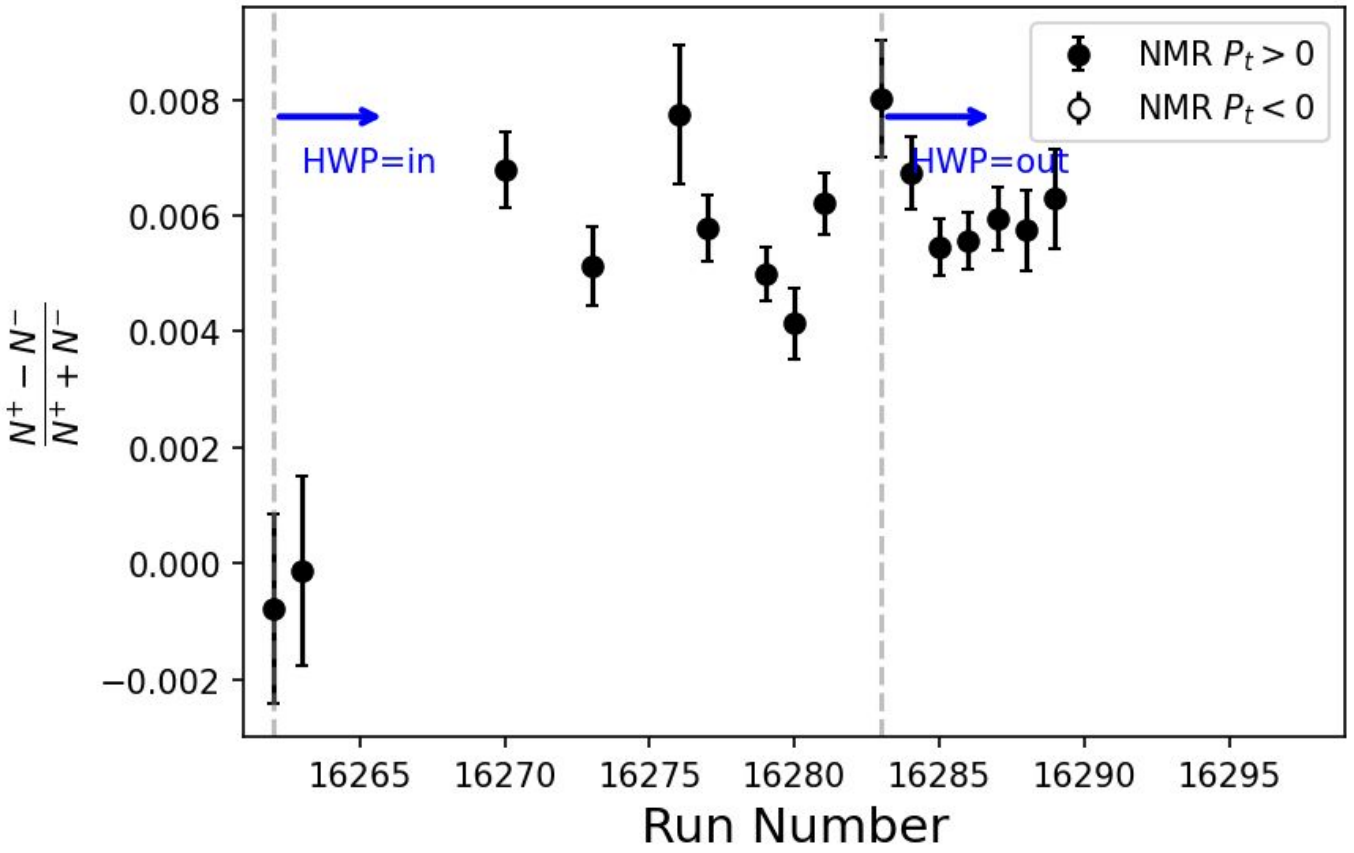
ND3's Target Polarization (2/3)



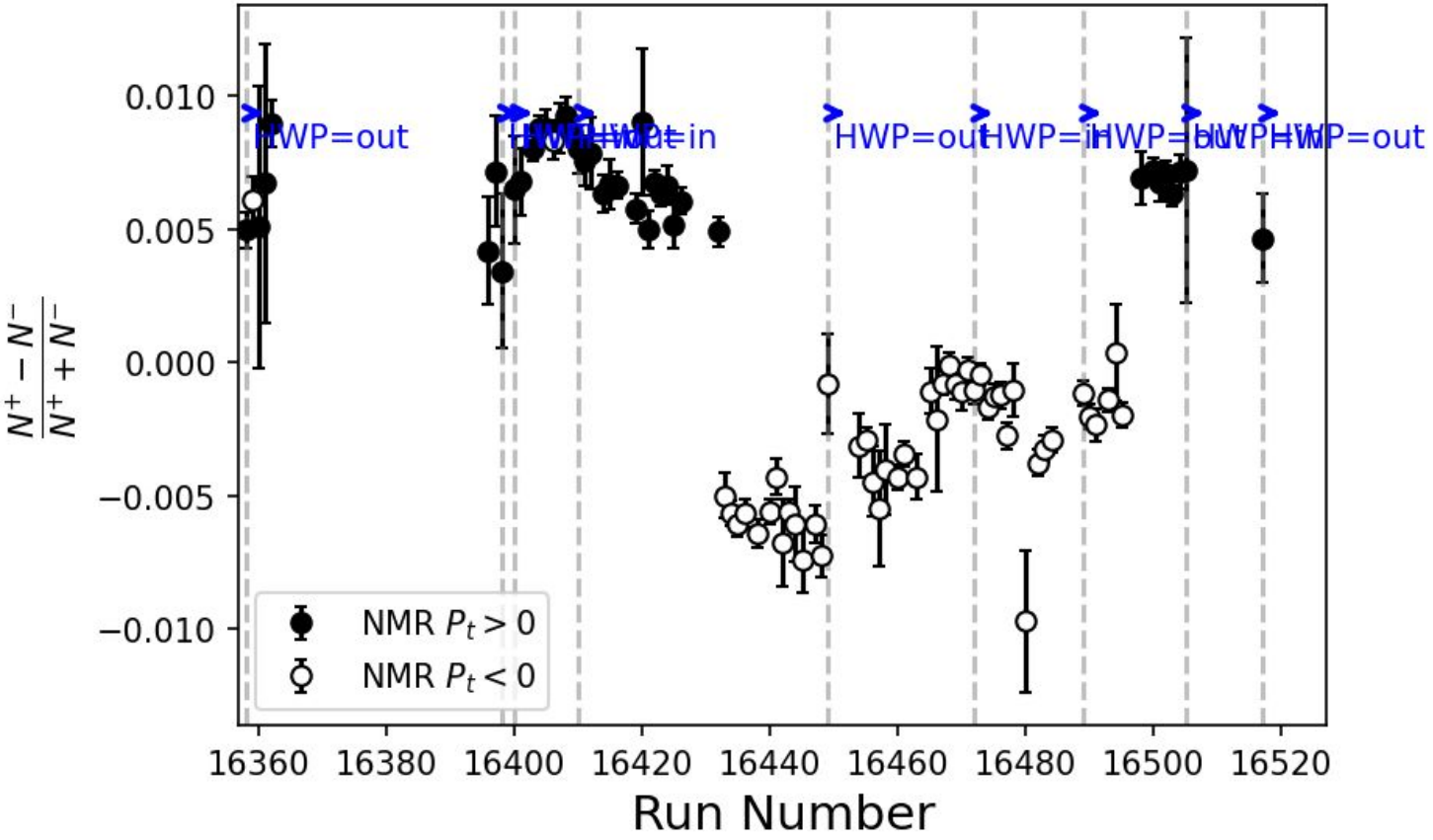
ND3's Target Polarization (3/3)



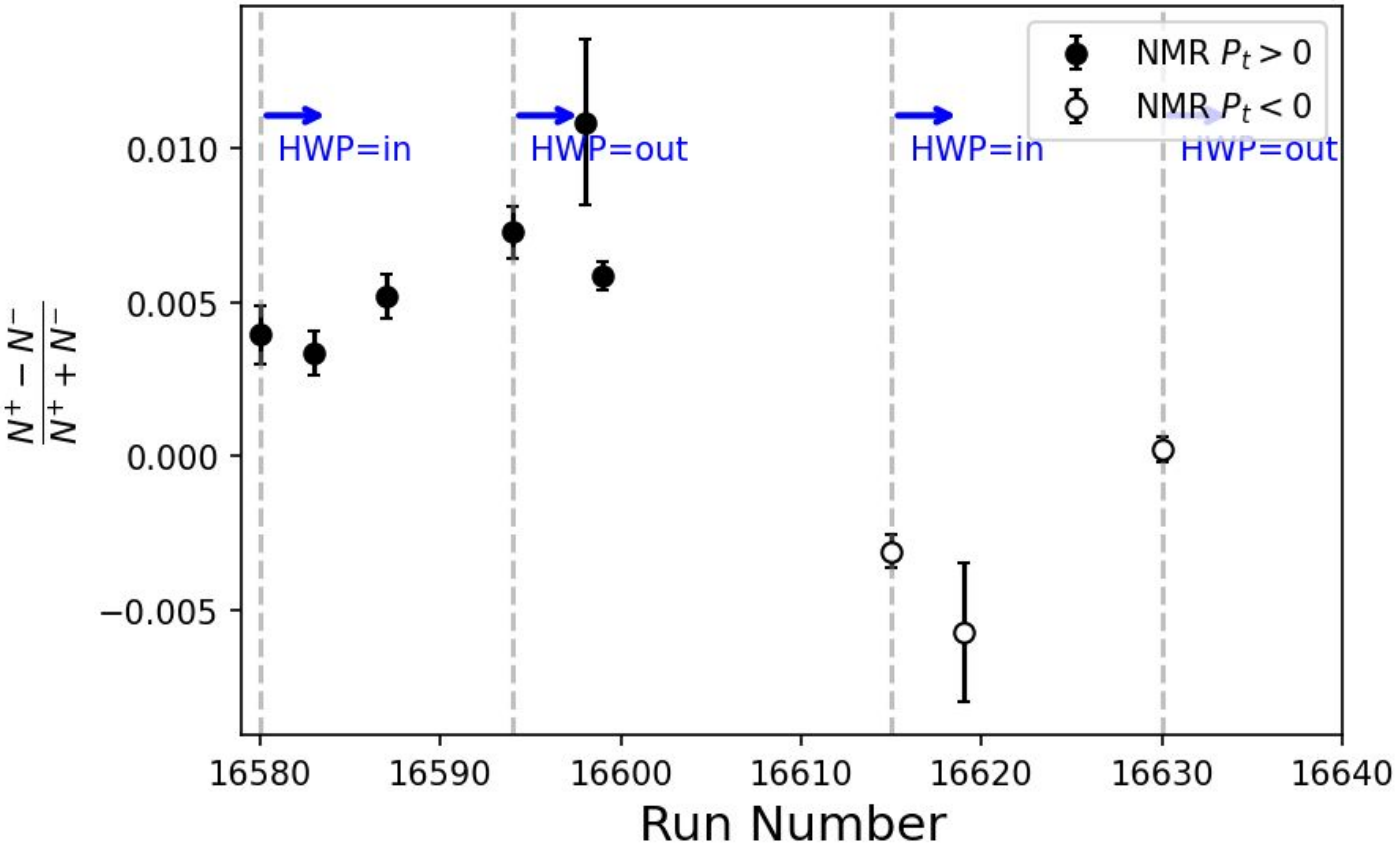
ND3's Count Asymmetry (1/3)



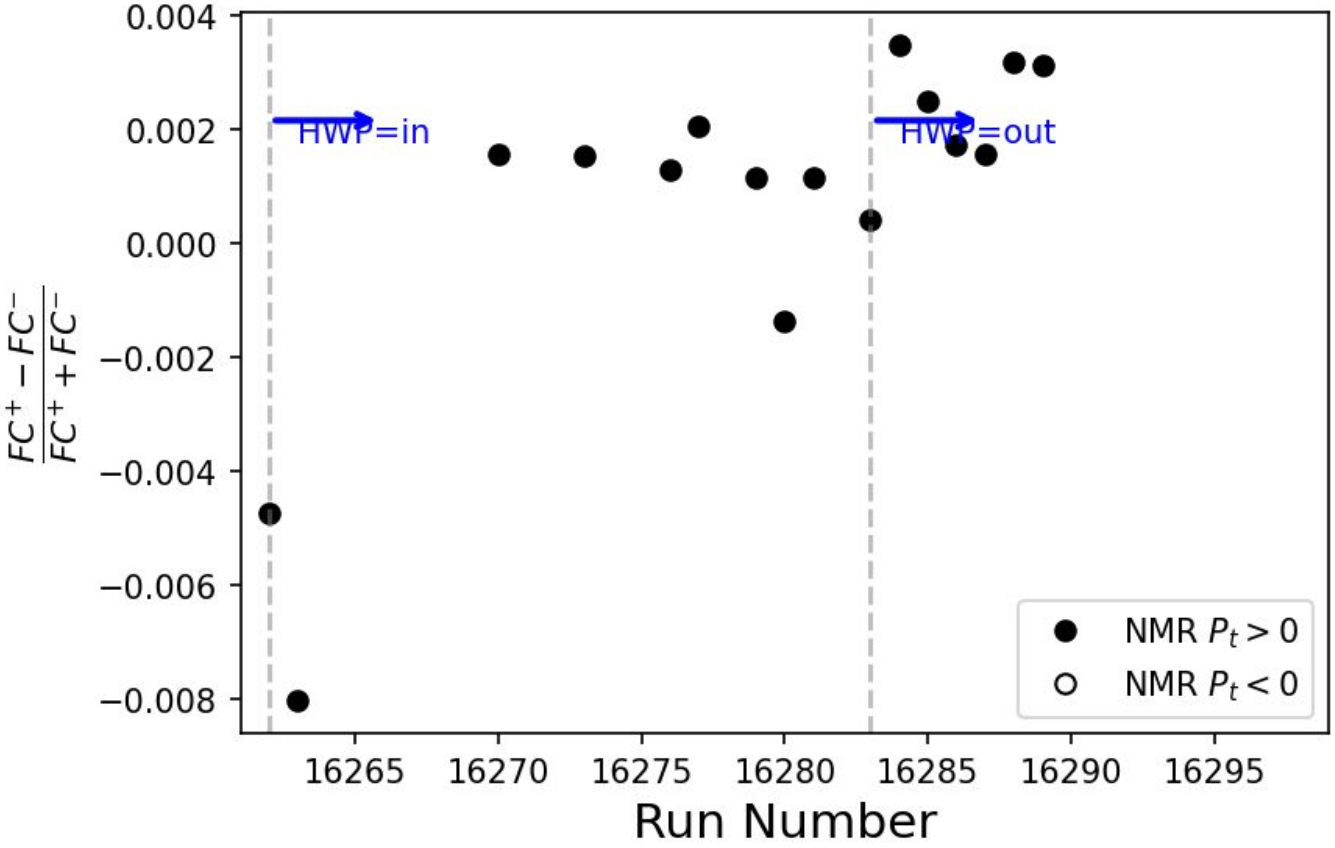
ND3's Count Asymmetry (2/3)



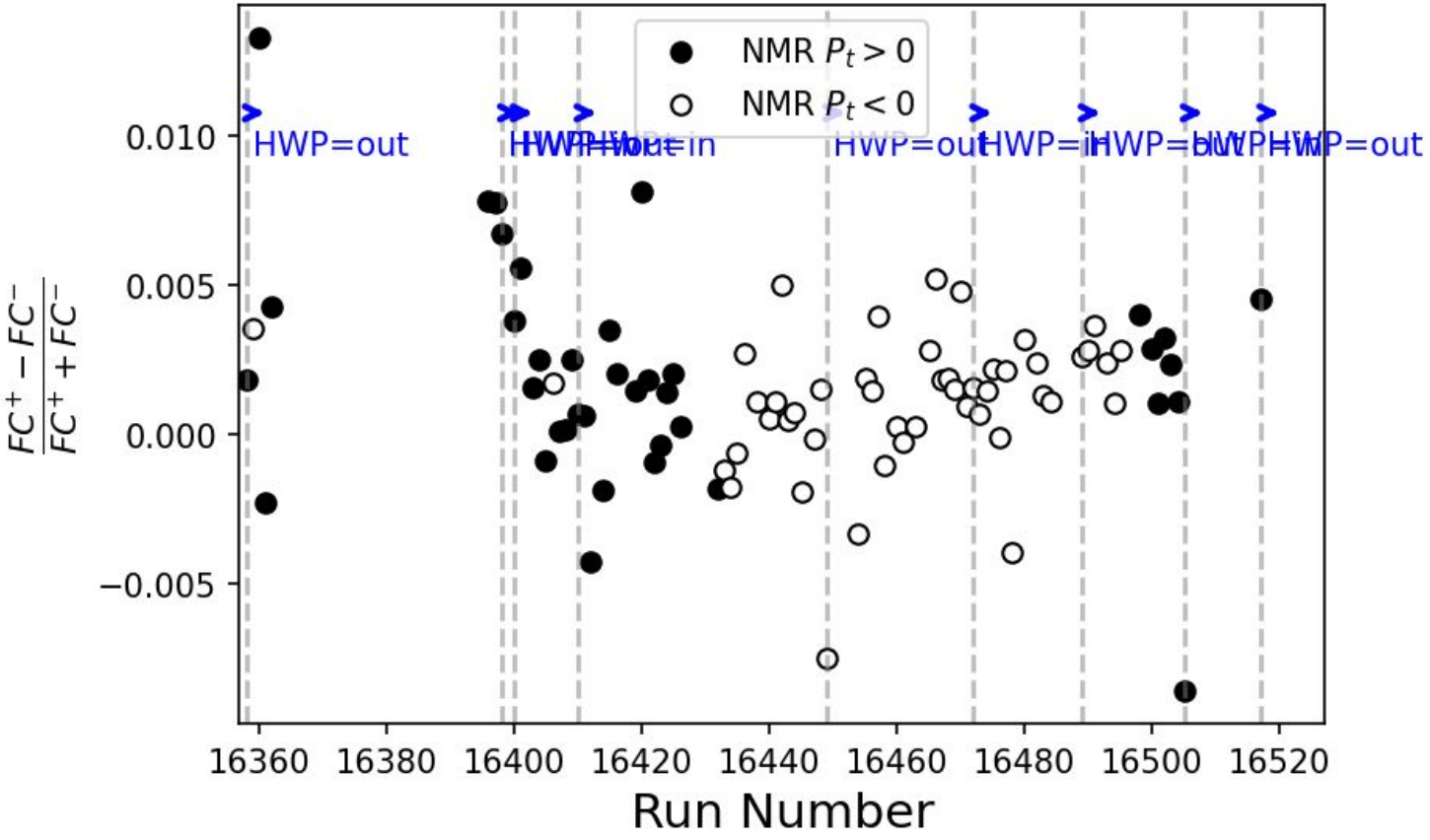
ND3's Count Asymmetry (3/3)



ND3's FCupGated Asymmetry (1/3)



ND3's FCupGated Asymmetry (2/3)



ND3's FCupGated Asymmetry (3/3)