```
Sea detuning sweep report (Ga sea / Al rare)

Global parameters (constant across sweep):
  f_Az (sea Larmor)     = 34.062 MHz
  f_Rz (rare Larmor)    = 33.308 MHz
  f1A (sea Rabi)        = 0.020 kHz
  f1R (rare Rabi)       = 0.010 kHz
  gamma_sea             = 7.134e+07 rad·s⁻¹·T⁻¹
  gamma_rare            = 6.976e+07 rad·s⁻¹·T⁻¹
  B0_common             = 3.000 T
  B1_sea                = 1.761e-06 T
  B1_rare               = 9.007e-07 T
  dipolar_scale_SI      = 1.055e-41
  shell_scale           = 0.300 nm
  t_final               = 3.000e-01 s
  steps                 = 20000
  n_sea                 = 12
  phi_sea               = 1.571 rad
  phi_rare              = 1.571 rad

Sea detunings (δ_A = f_Az - f_rf,A) in Hz:
  +0.0, +12500.0, +25000.0, +37500.0, +50000.0, +62500.0, +75000.0, +87500.0, +100000
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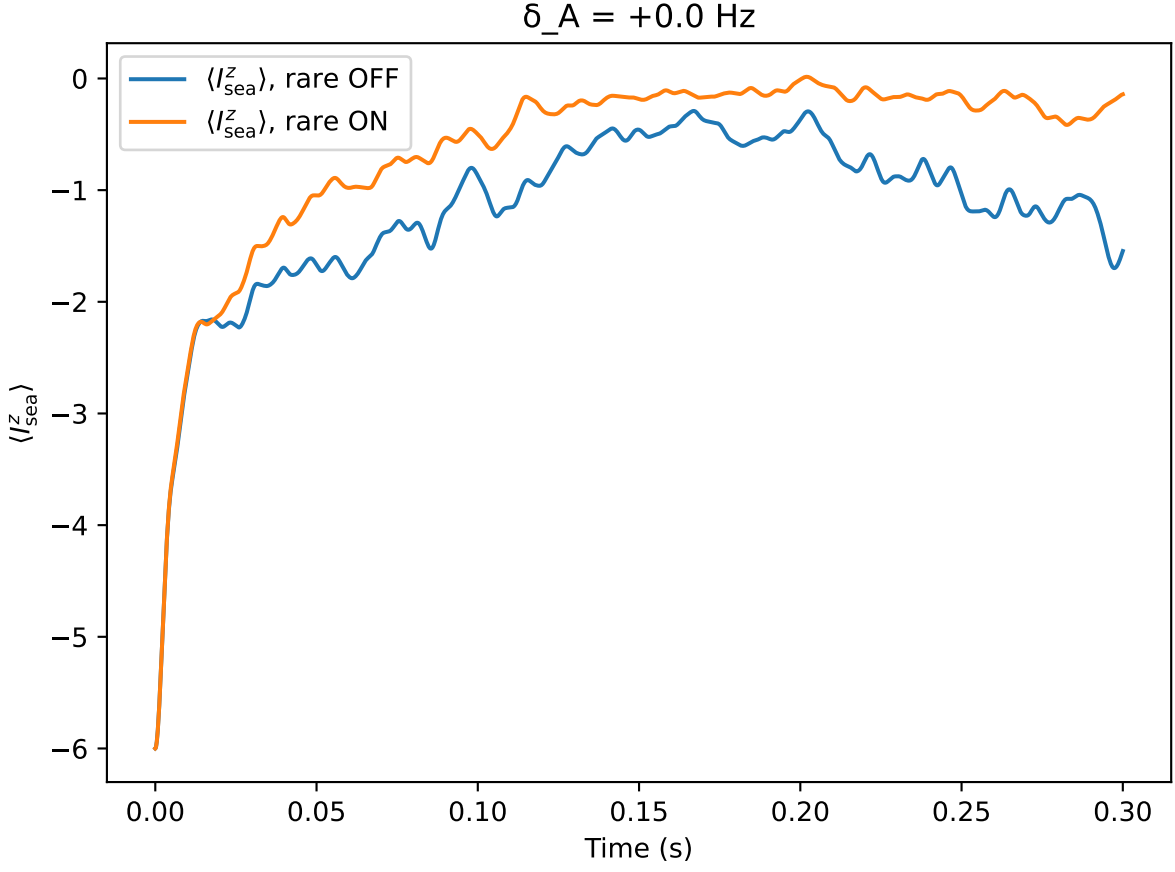
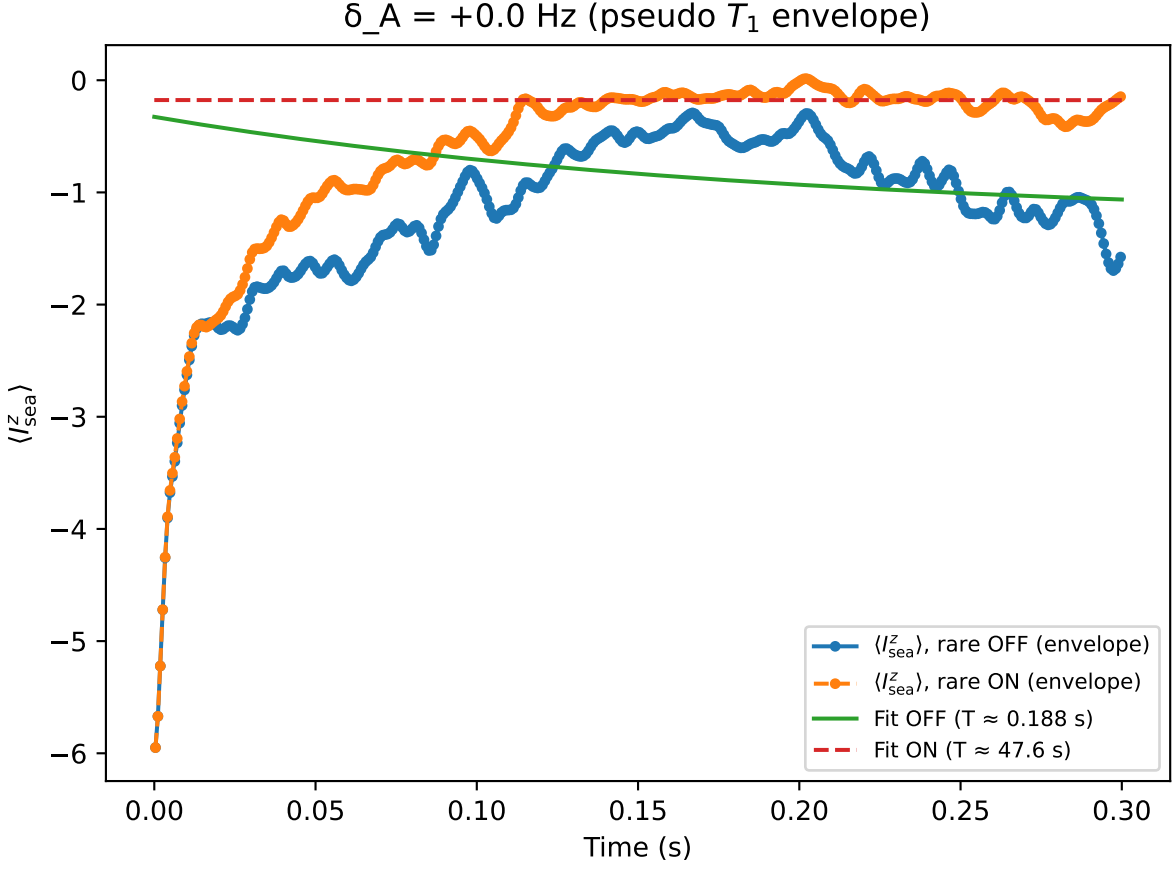
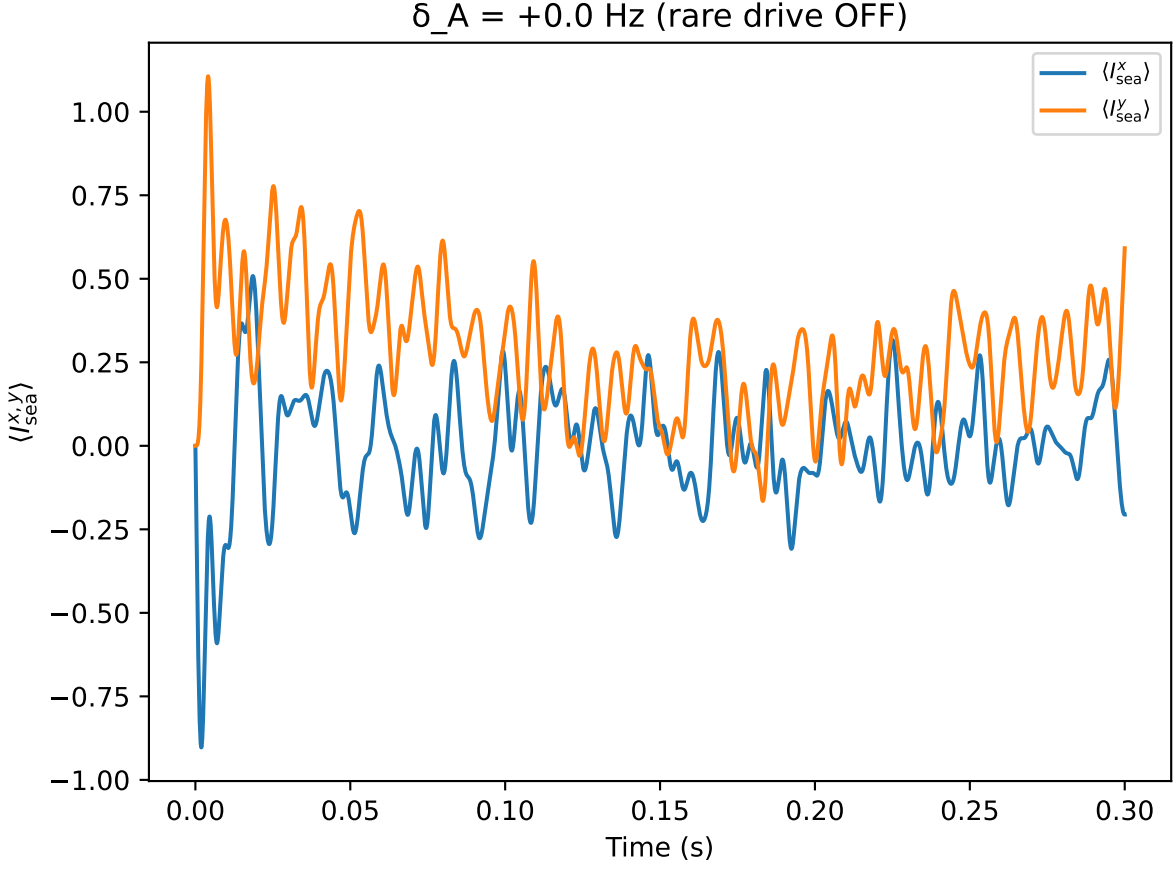
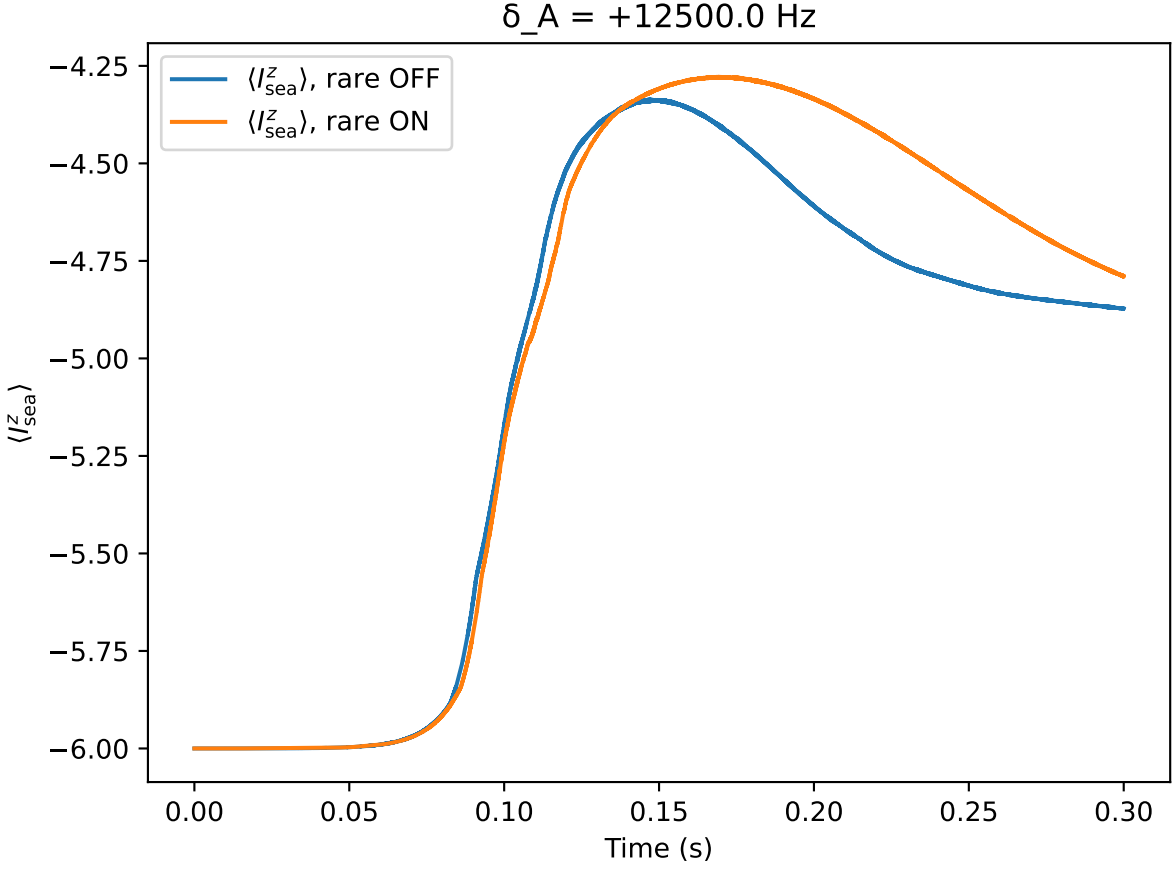
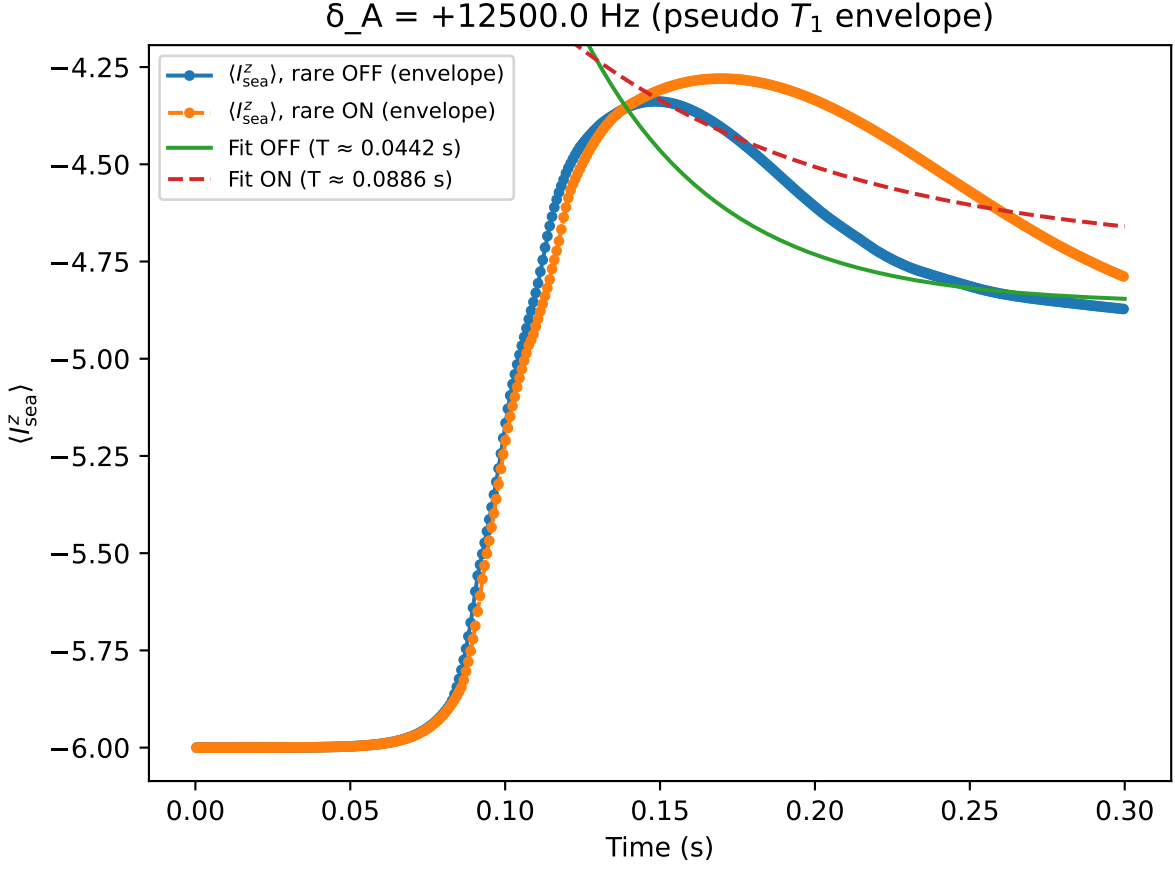
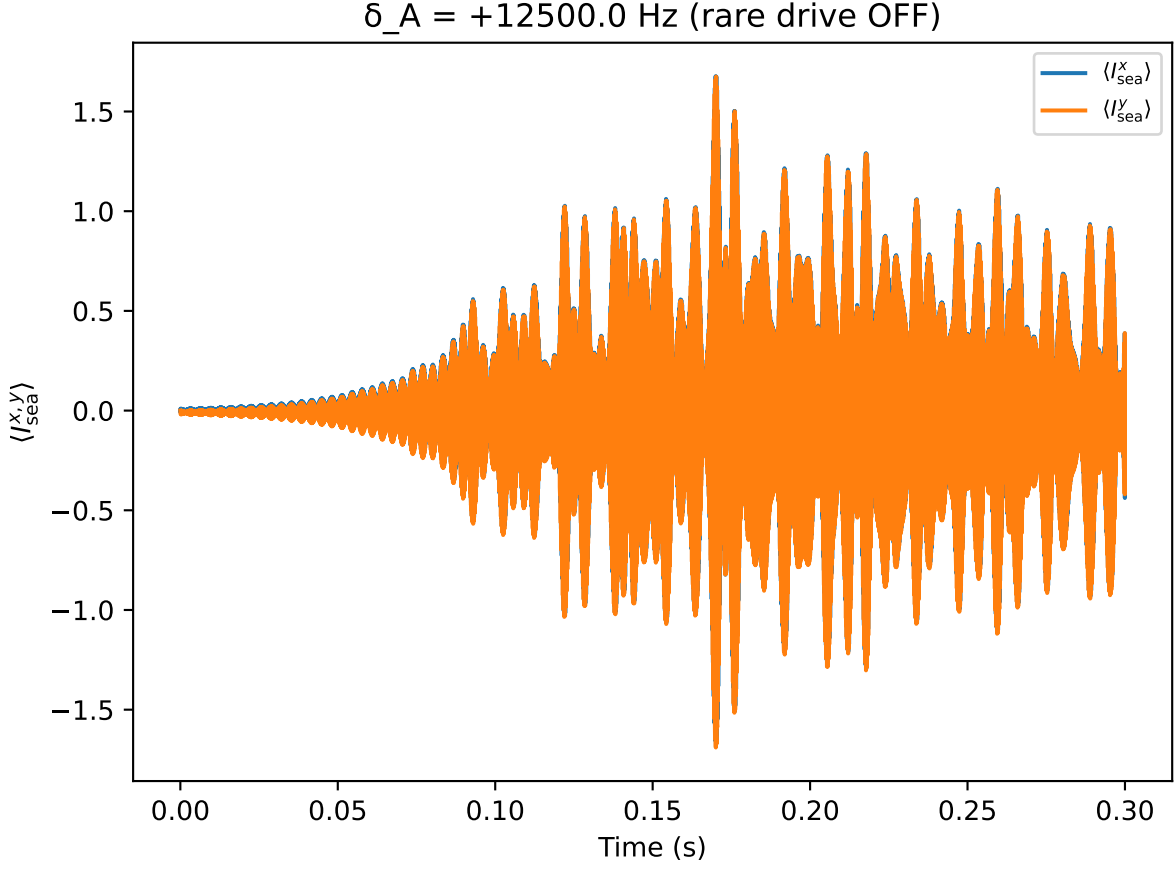

δ_A = +0.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
⟨I^z_{sea}⟩
0
−1
−2
−3
−4
−5
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

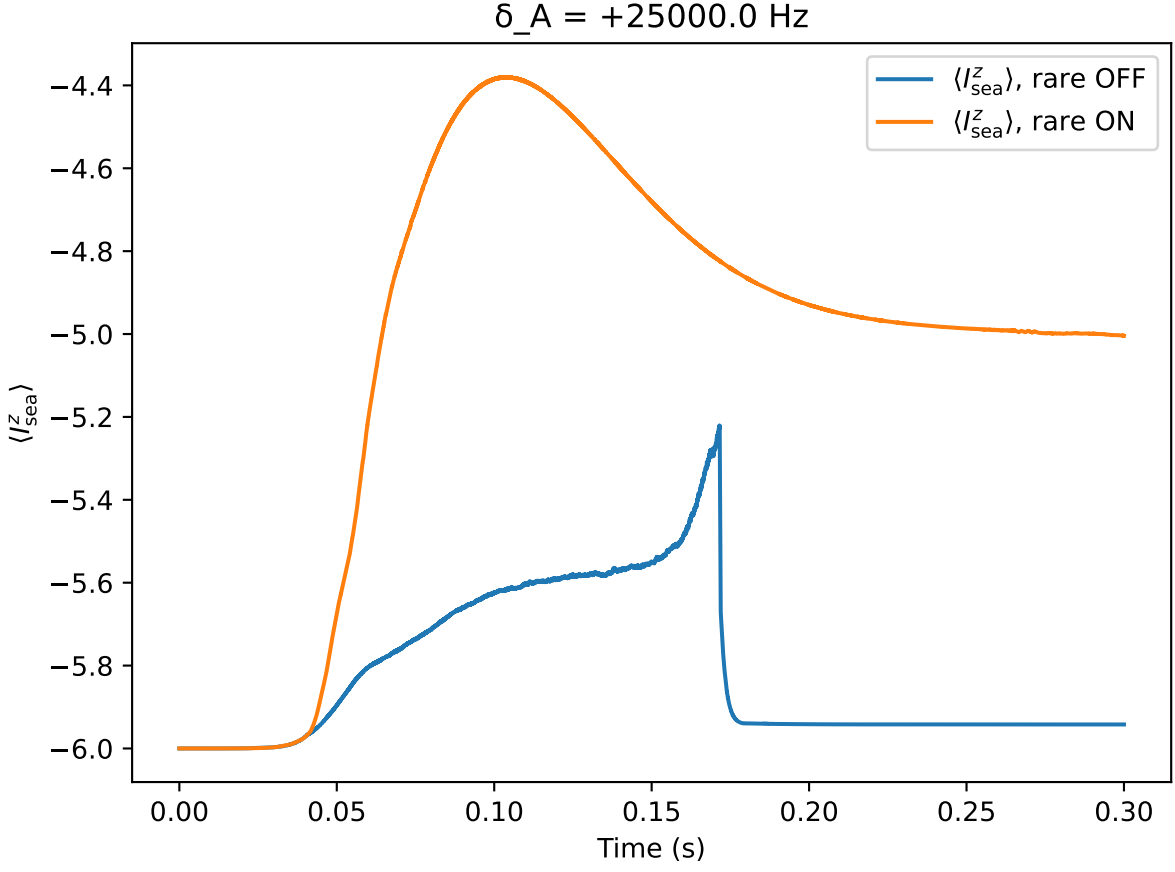

δ_A = +0.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
Time (s)
0
−1
−2
−3
−4
−5
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.188 s)
Fit ON (T ≈ 47.6 s)

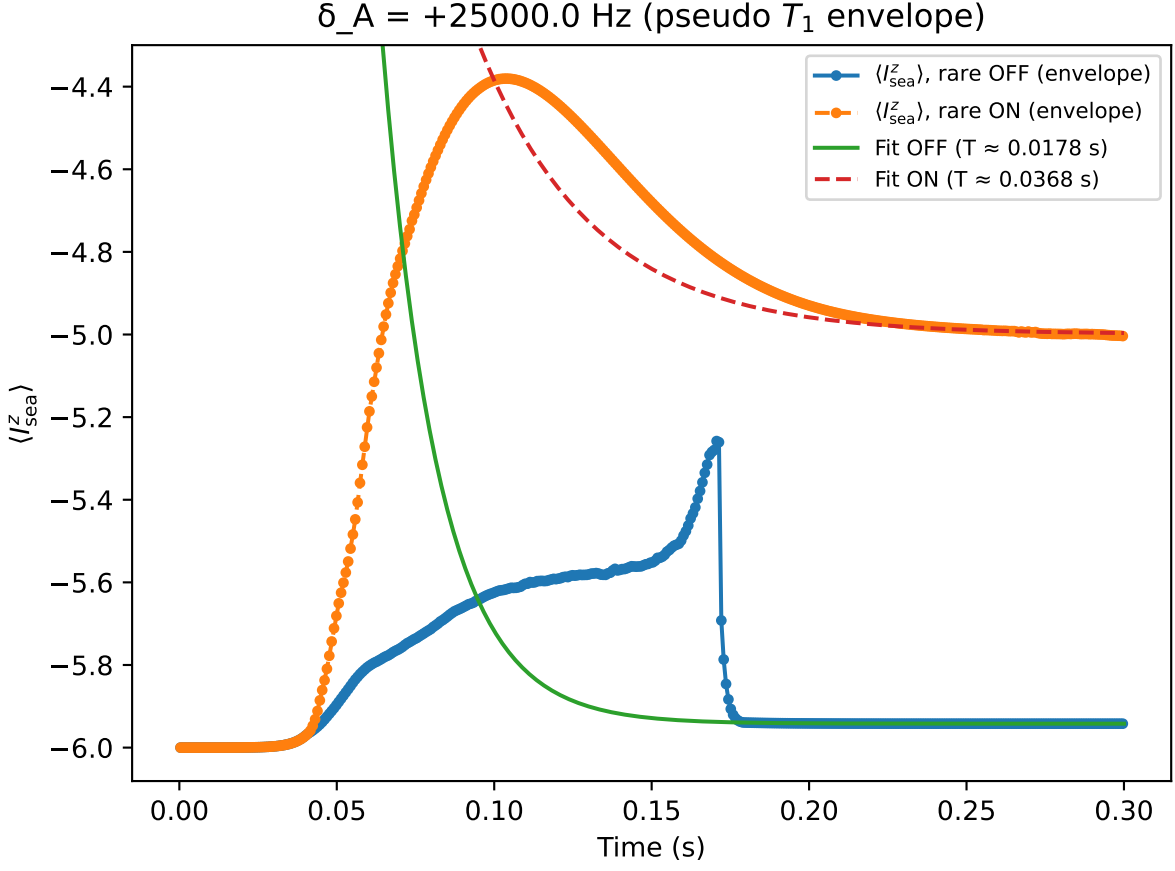

δ_A = +0.0 Hz (rare drive OFF)
⟨I^x_sea⟩
⟨I^y_sea⟩
⟨I^{x,y}_sea⟩
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

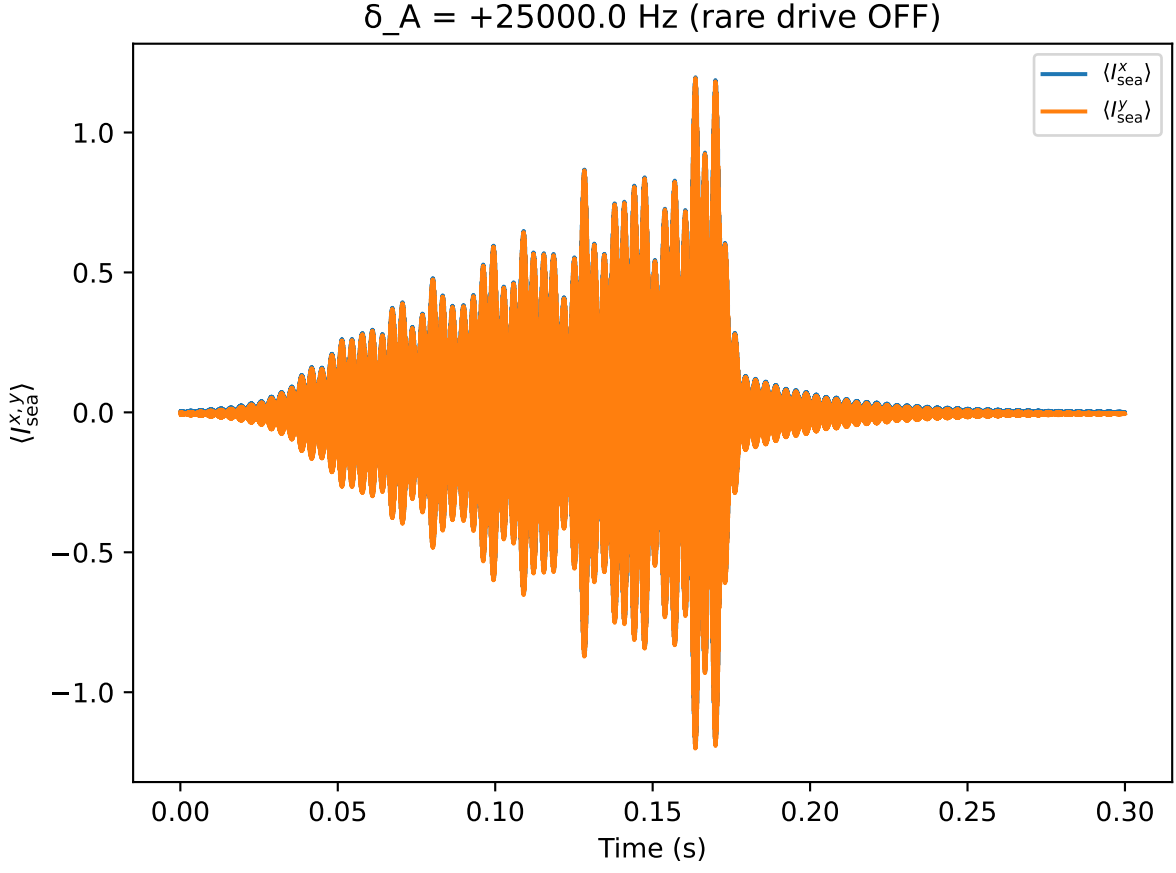

δ_A = +12500.0 Hz
⟨I^z_sea⟩, rare OFF
⟨I^z_sea⟩, rare ON
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
⟨I^z_sea⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

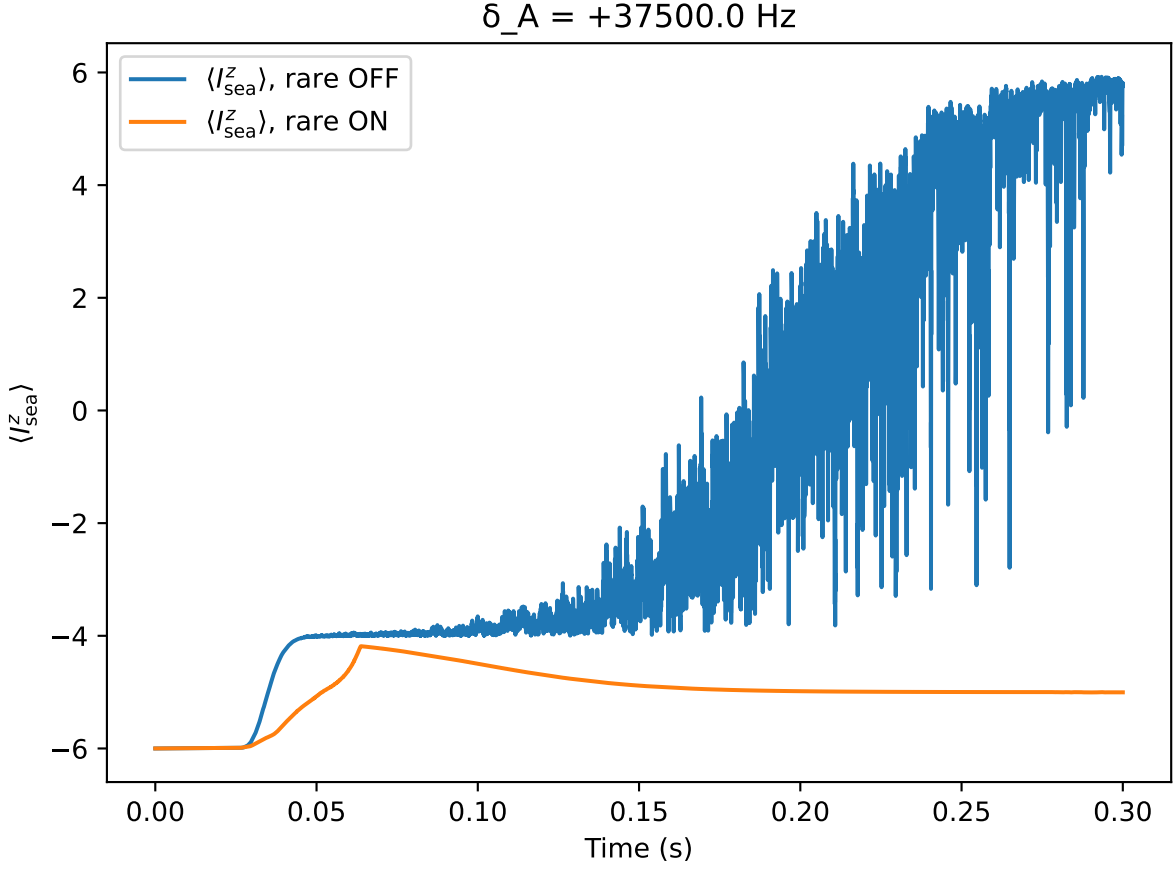

δ_A = +12500.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.0442 s)
Fit ON (T ≈ 0.0886 s)
$\langle I^z_{sea} \rangle$
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

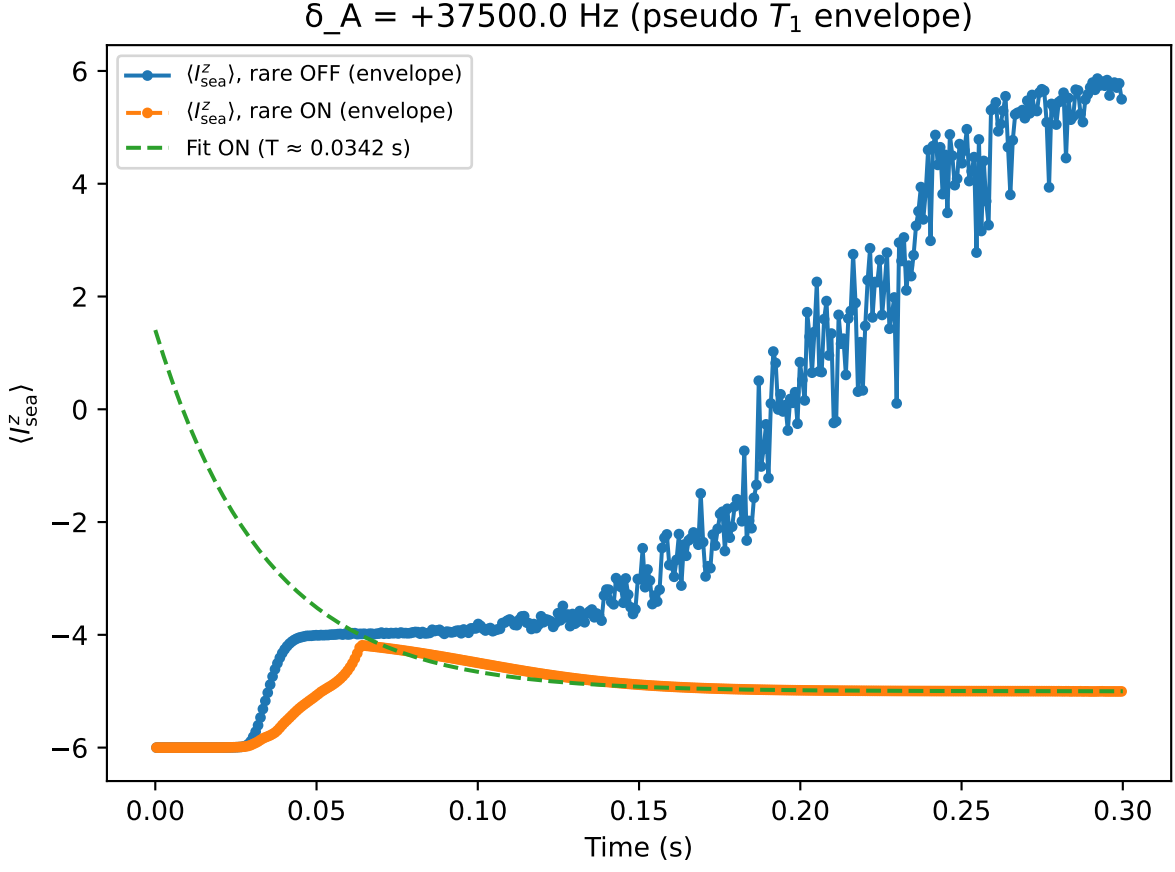

δ_A = +12500.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
$\langle I^{x,y}_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

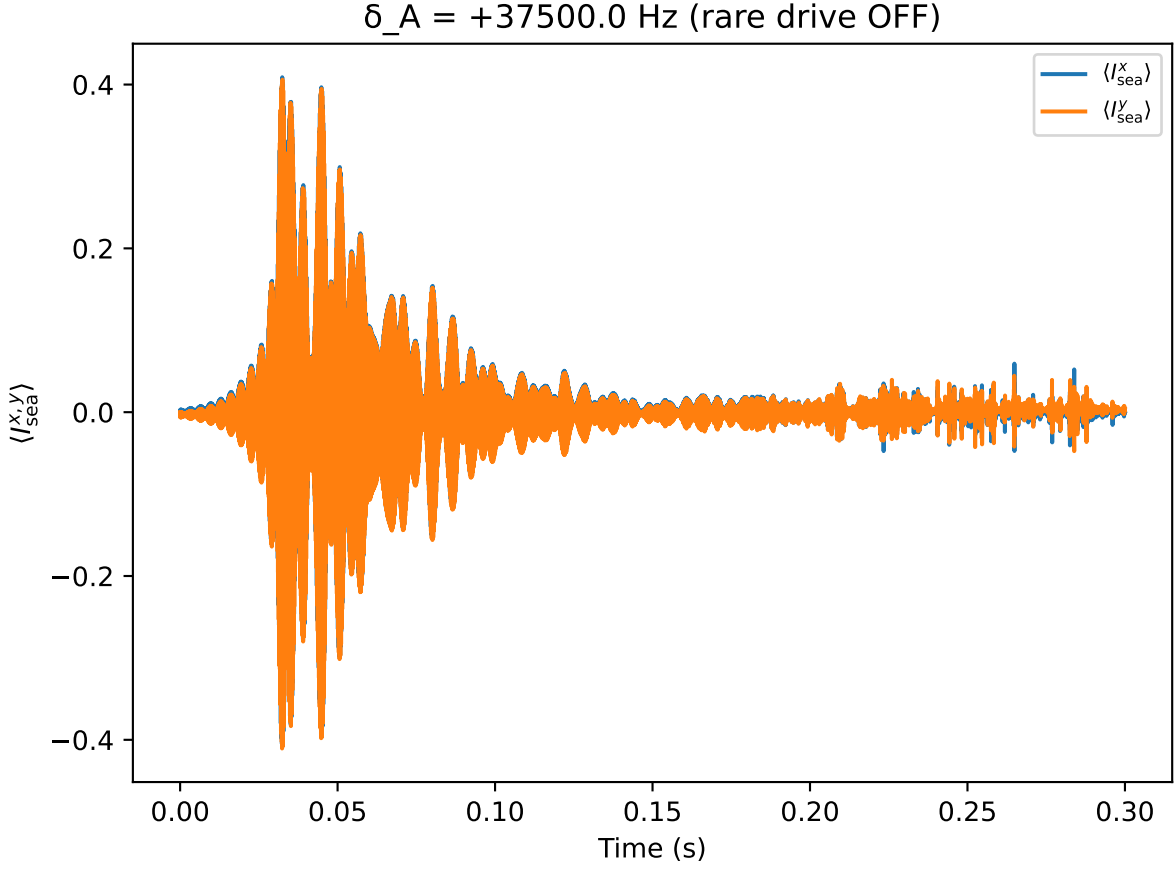

δ_A = +25000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−4.4
−4.6
−4.8
−5.0
−5.2
−5.4
−5.6
−5.8
−6.0
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

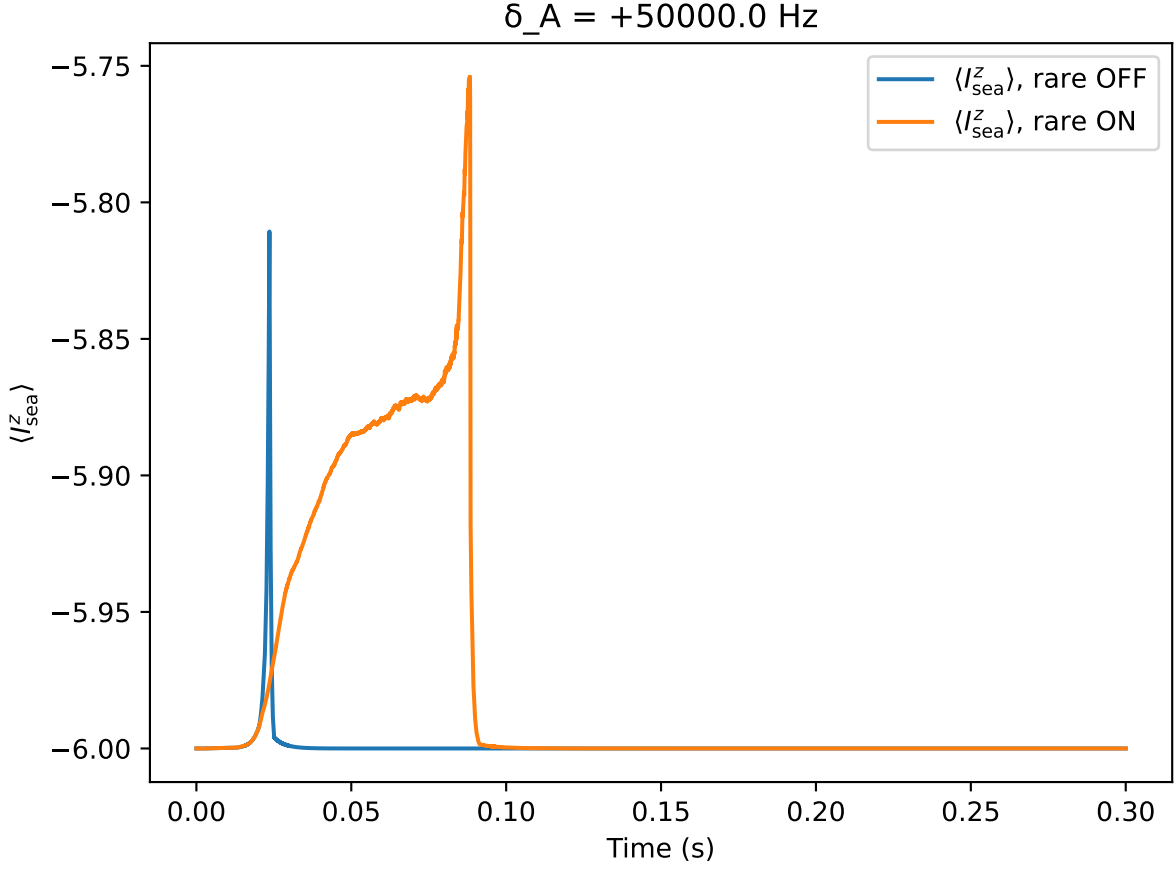

δ_A = +25000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.0178 s)
Fit ON (T ≈ 0.0368 s)
$\langle I^z_{sea} \rangle$
−4.4
−4.6
−4.8
−5.0
−5.2
−5.4
−5.6
−5.8
−6.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

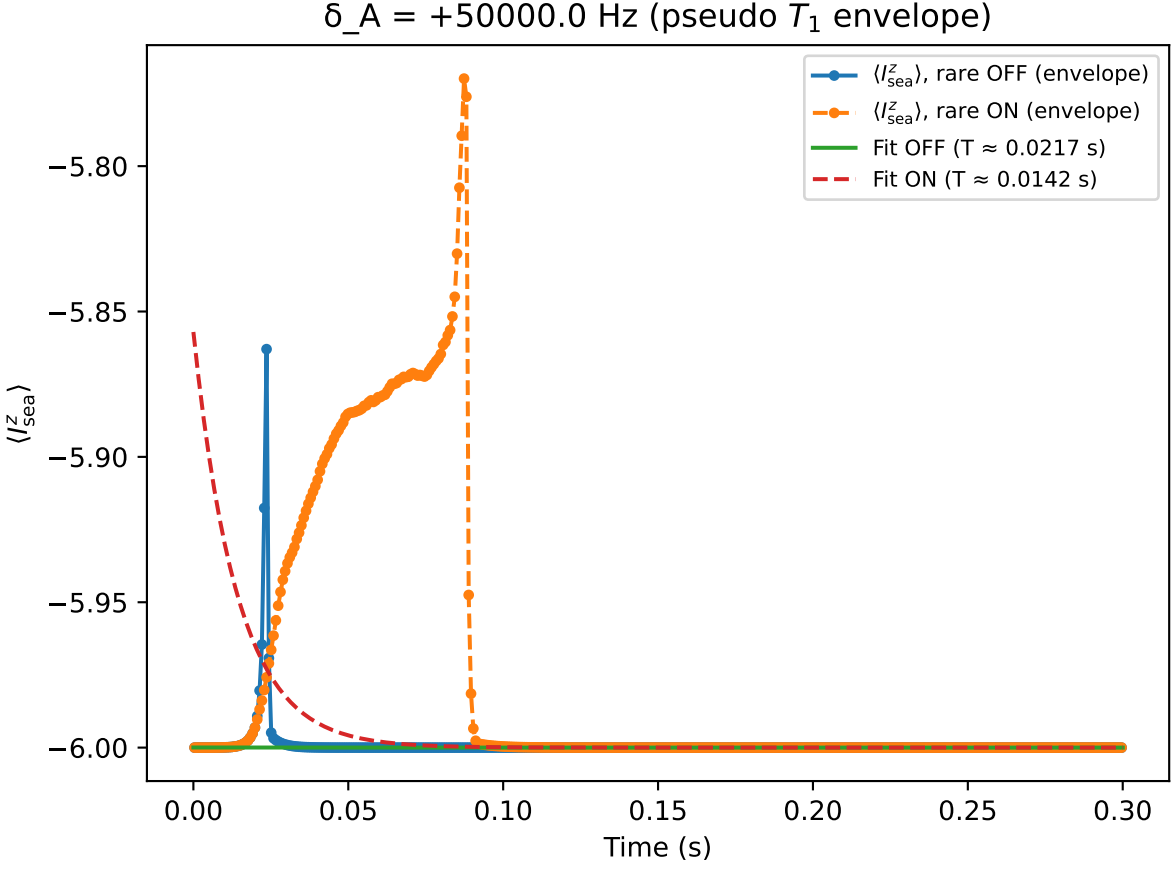

δ_A = +25000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
1.0
0.5
0.0
−0.5
−1.0
$\langle I^{x,y}_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

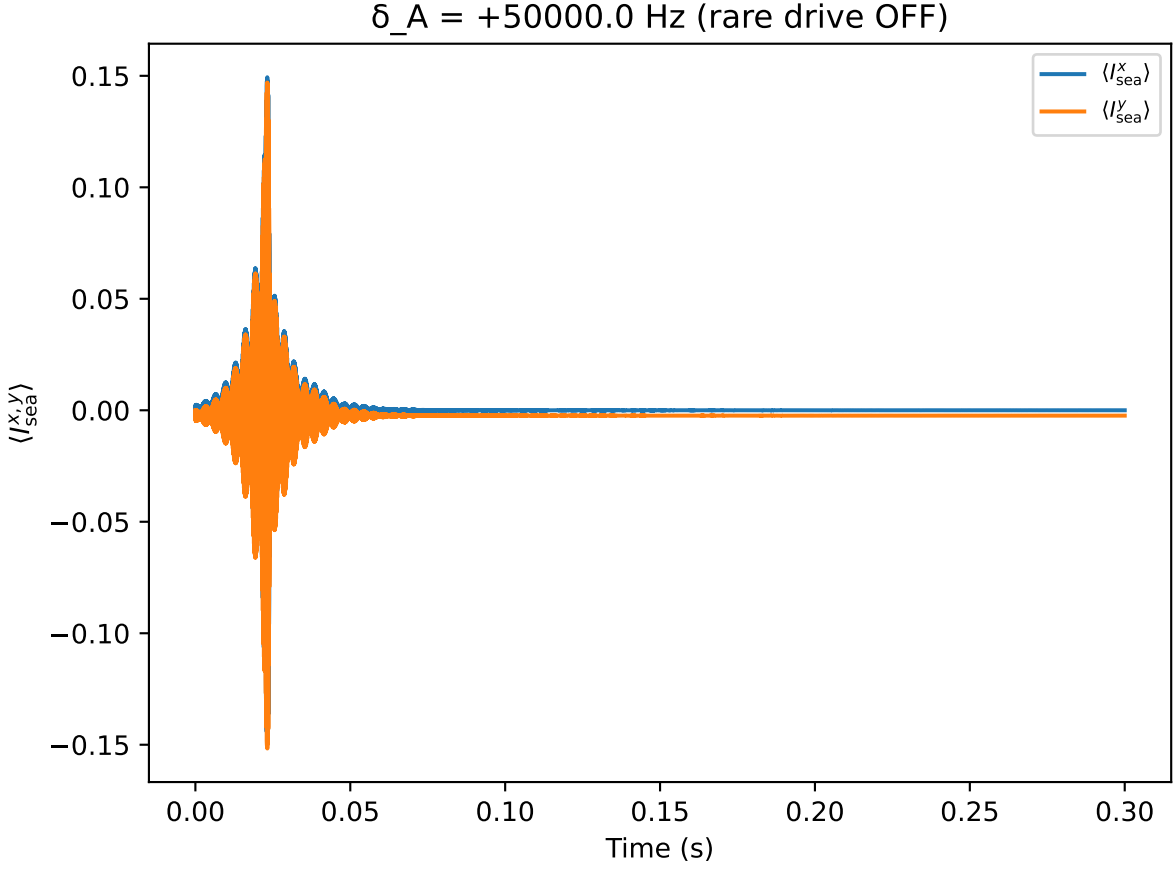

δ_A = +37500.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
⟨I^z_{sea}⟩
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30

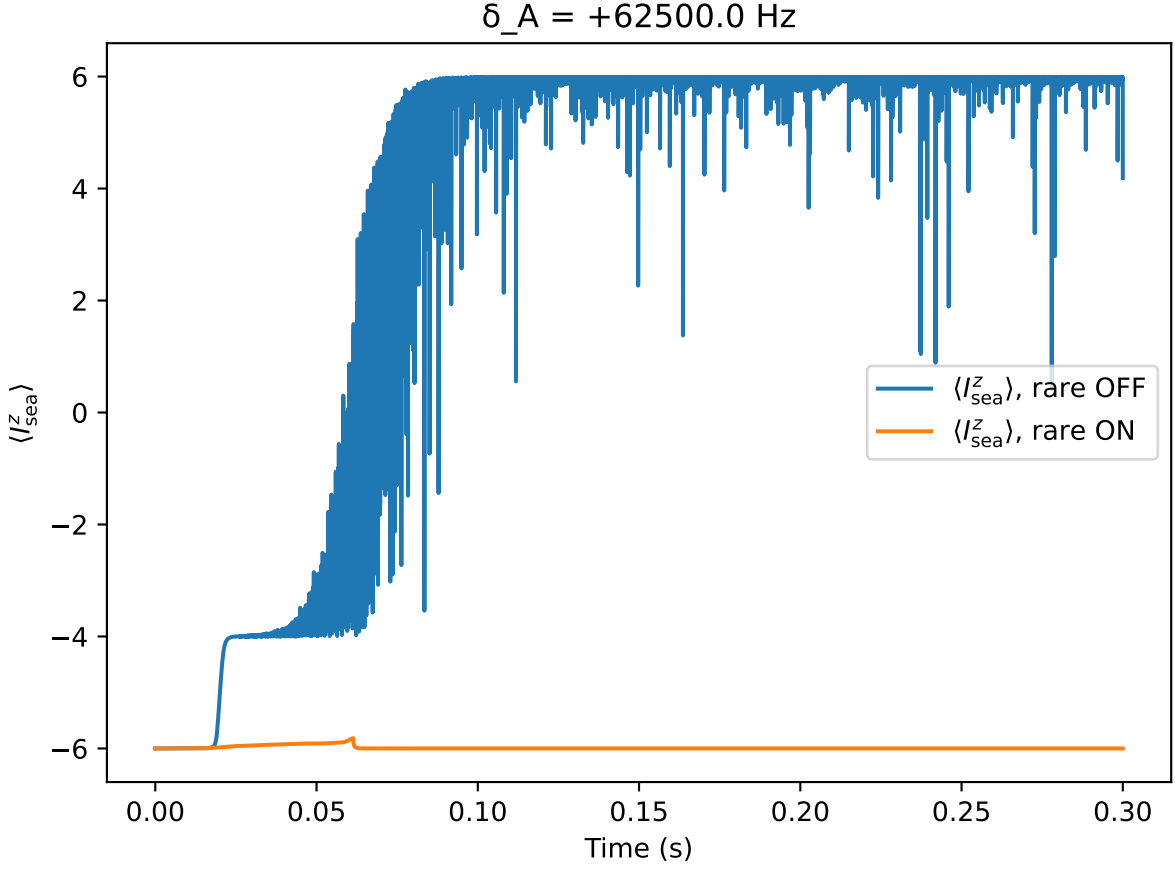

δ_A = +37500.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0342 s)
$\langle I^z_{sea} \rangle$
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30

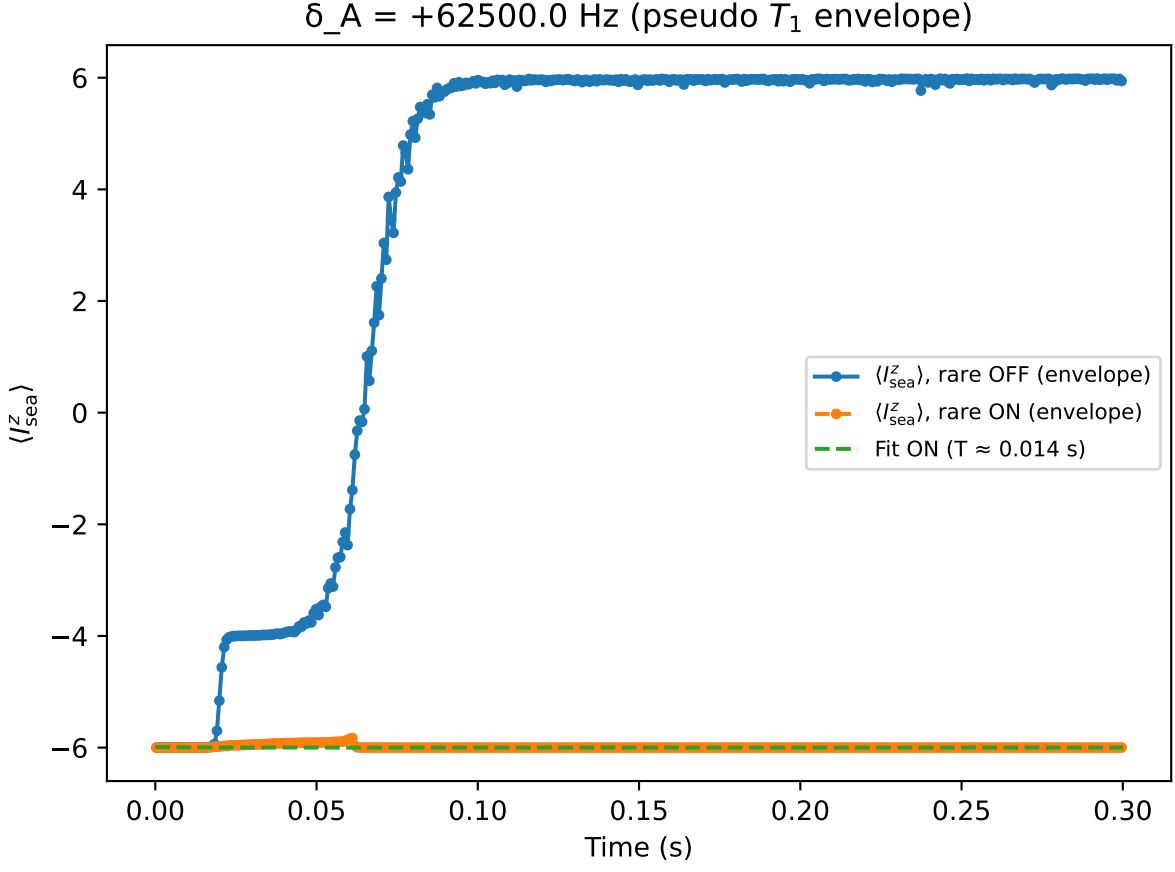

δ_A = +37500.0 Hz (rare drive OFF)
$\langle I^{x}_{\mathrm{sea}} \rangle$
$\langle I^{y}_{\mathrm{sea}} \rangle$
$\langle I^{x,y}_{\mathrm{sea}} \rangle$
0.4
0.2
0.0
−0.2
−0.4
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

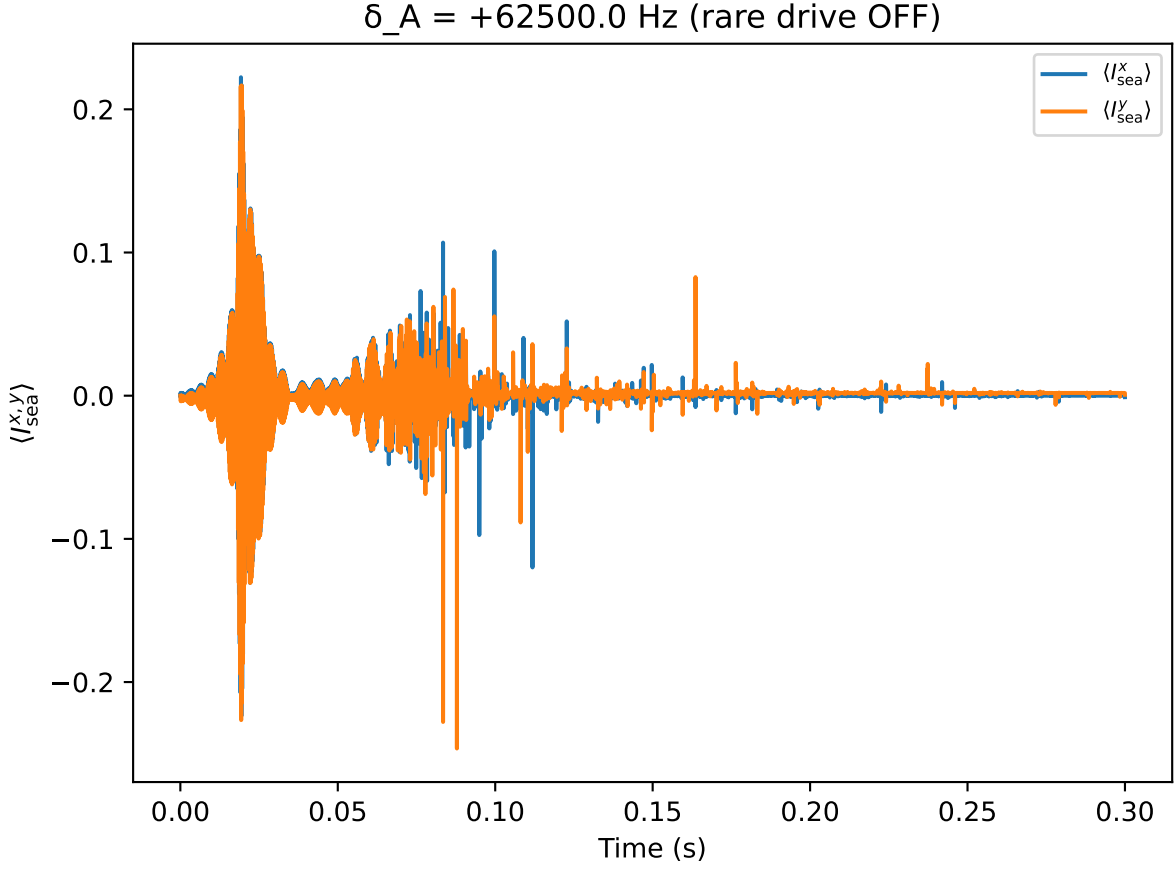

δ_A = +50000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−5.75
−5.80
−5.85
−5.90
−5.95
−6.00
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

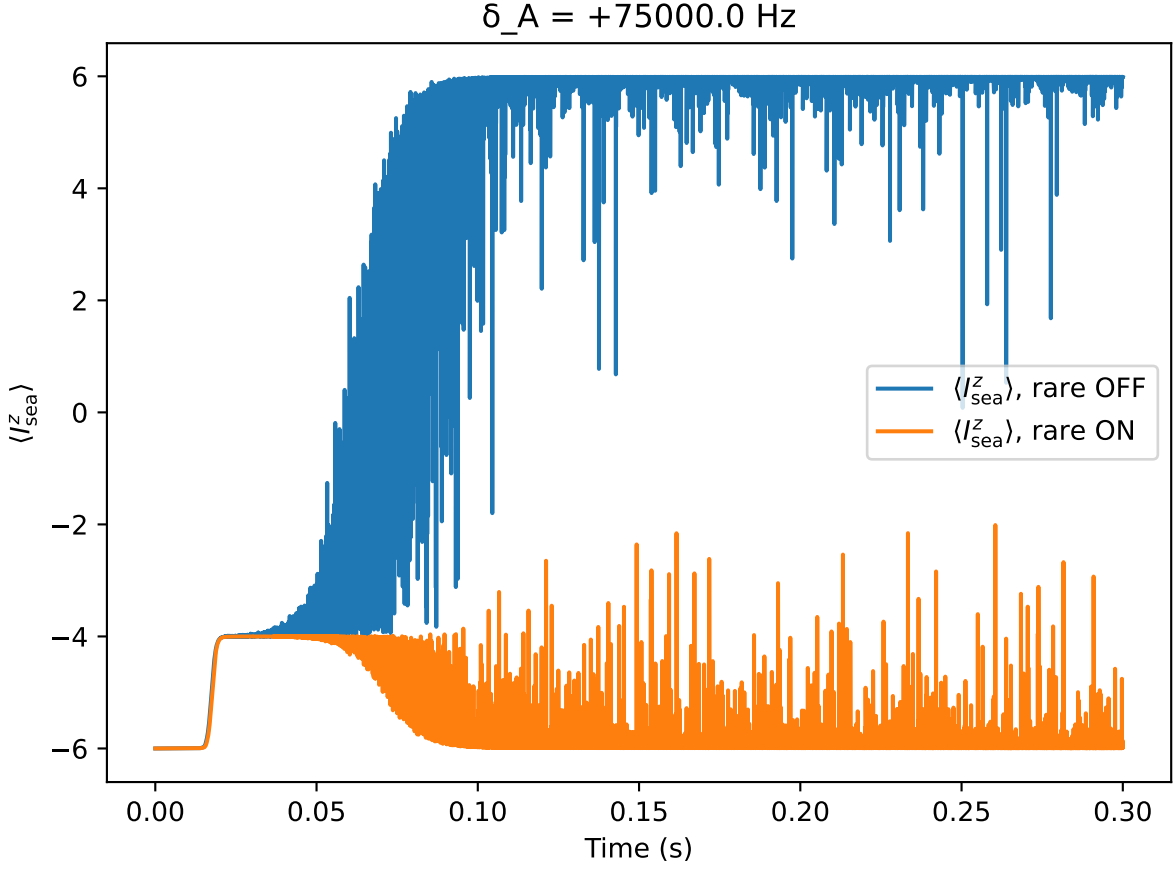

δ_A = +50000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.0217 s)
Fit ON (T ≈ 0.0142 s)
−5.80
−5.85
−5.90
−5.95
−6.00
$\langle I^z_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

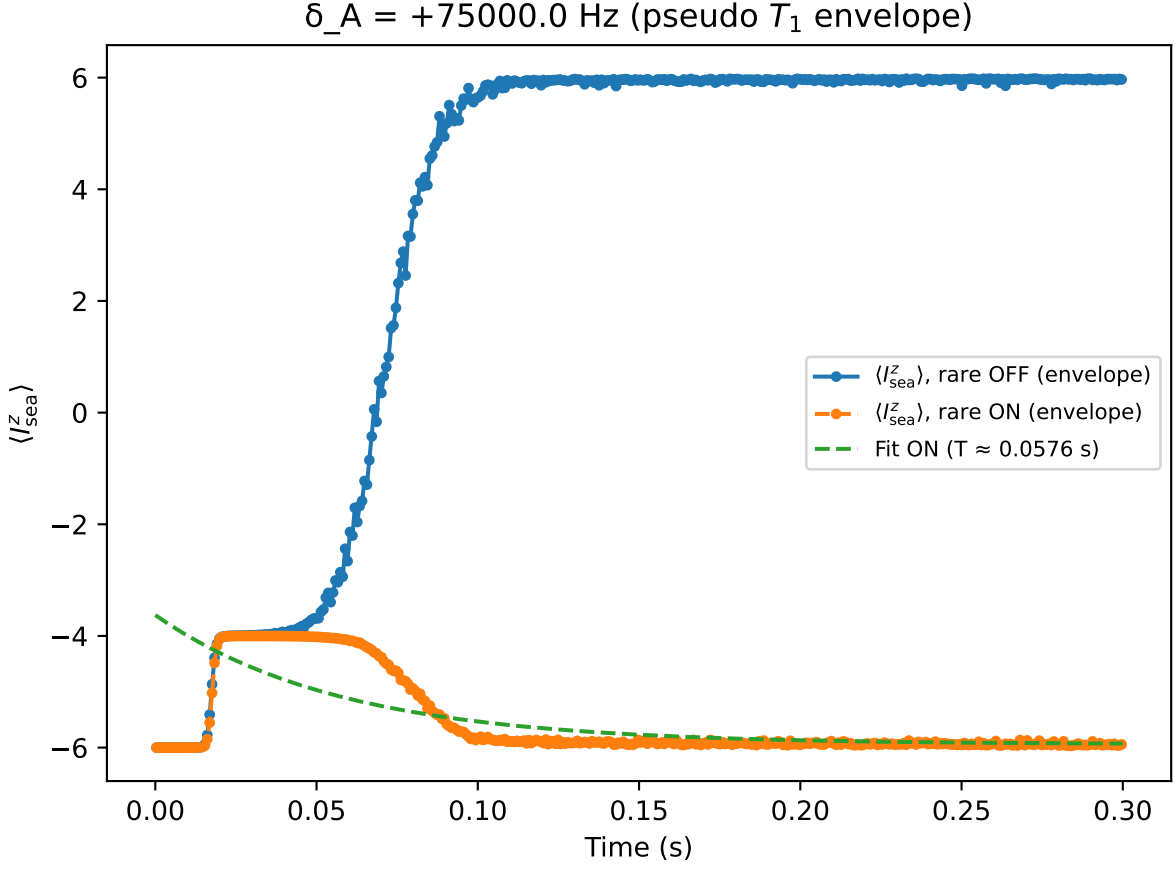

δ_A = +50000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
$\langle I^{x,y}_{sea} \rangle$
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

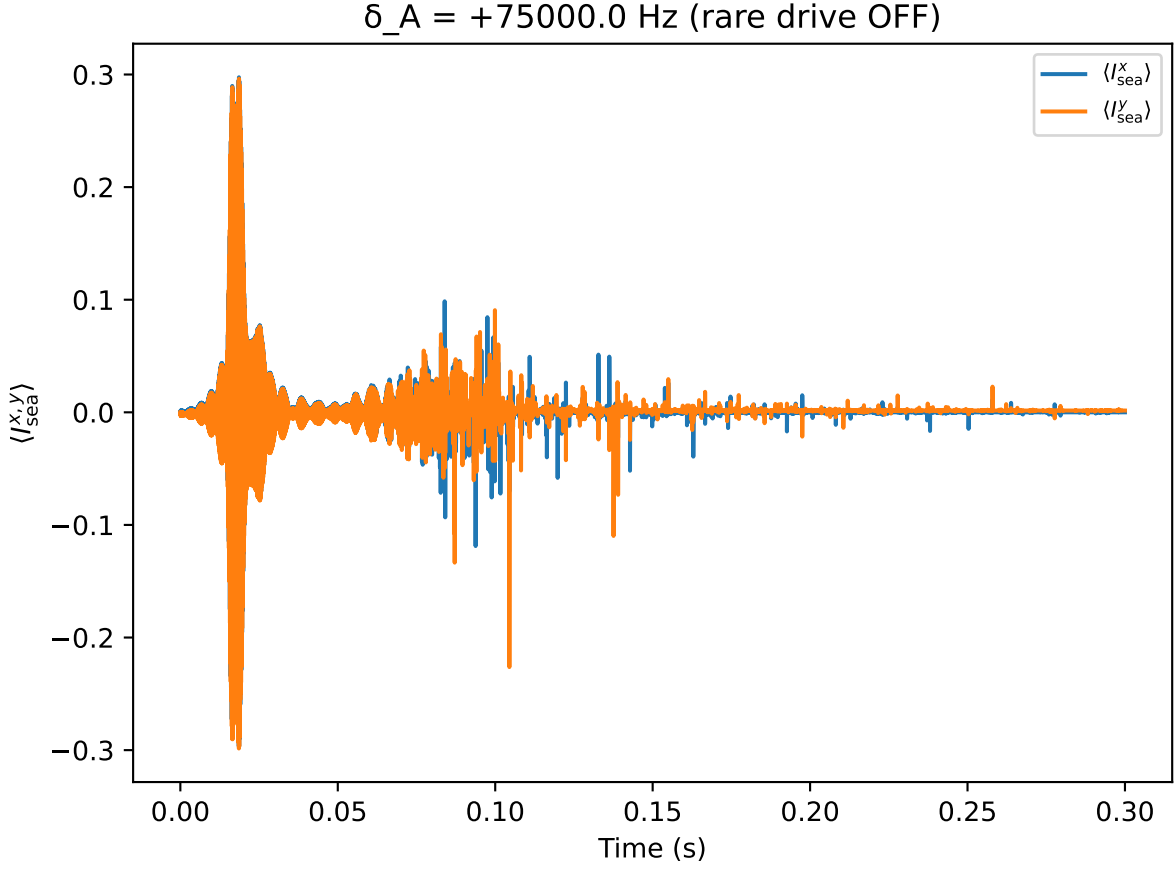

δ_A = +62500.0 Hz
6
4
2
0
−2
−4
−6
$\langle I^z_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)
$\langle I^z_{sea} \rangle$, rare OFF
$\langle I^z_{sea} \rangle$, rare ON

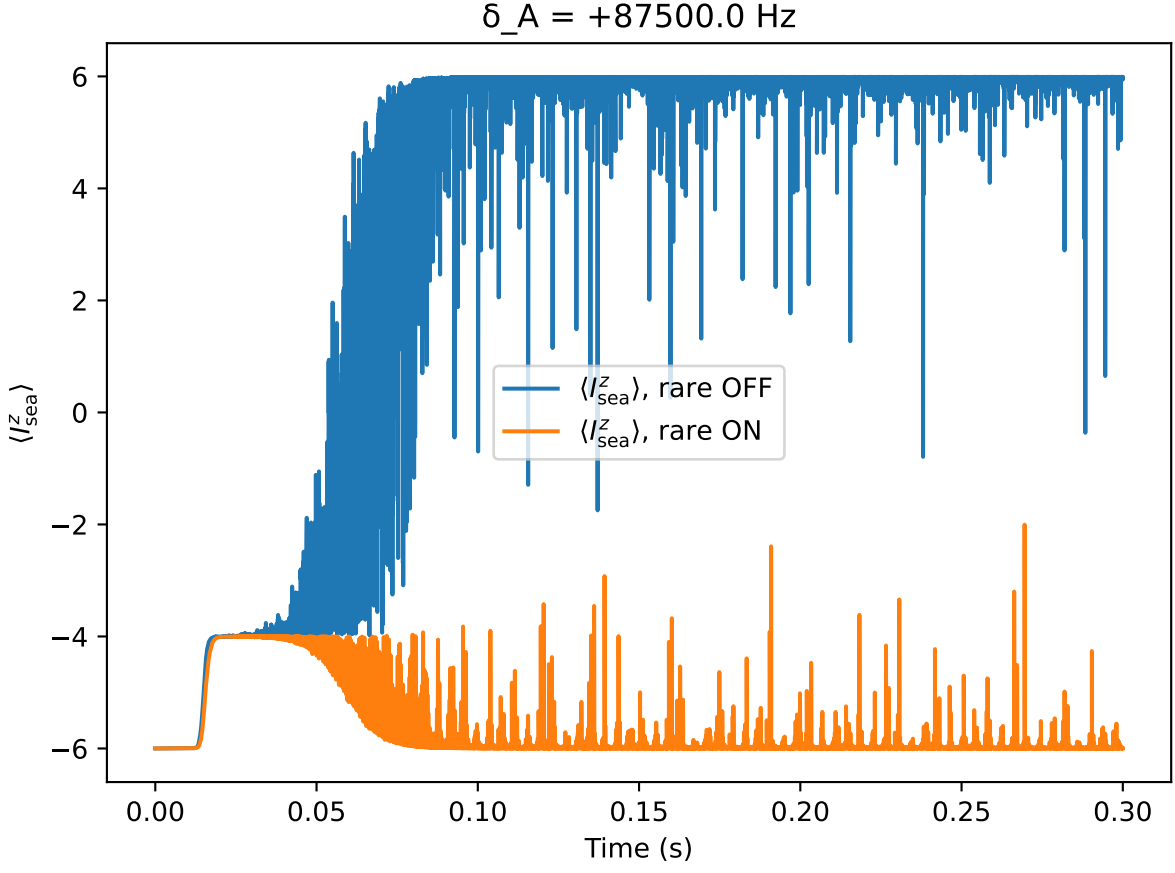

δ_A = +62500.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
Time (s)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.014 s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30

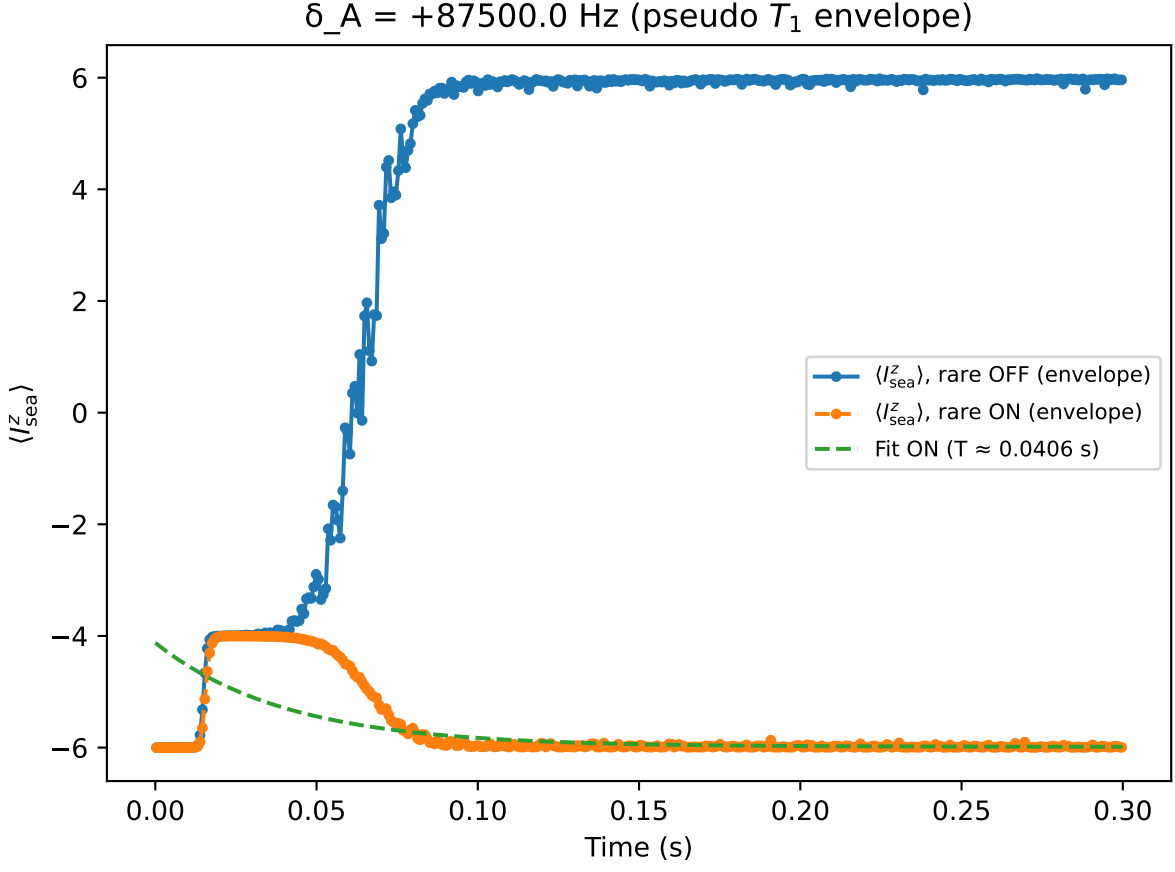

δ_A = +62500.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
0.2
0.1
0.0
−0.1
−0.2
$\langle I^{x,y}_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

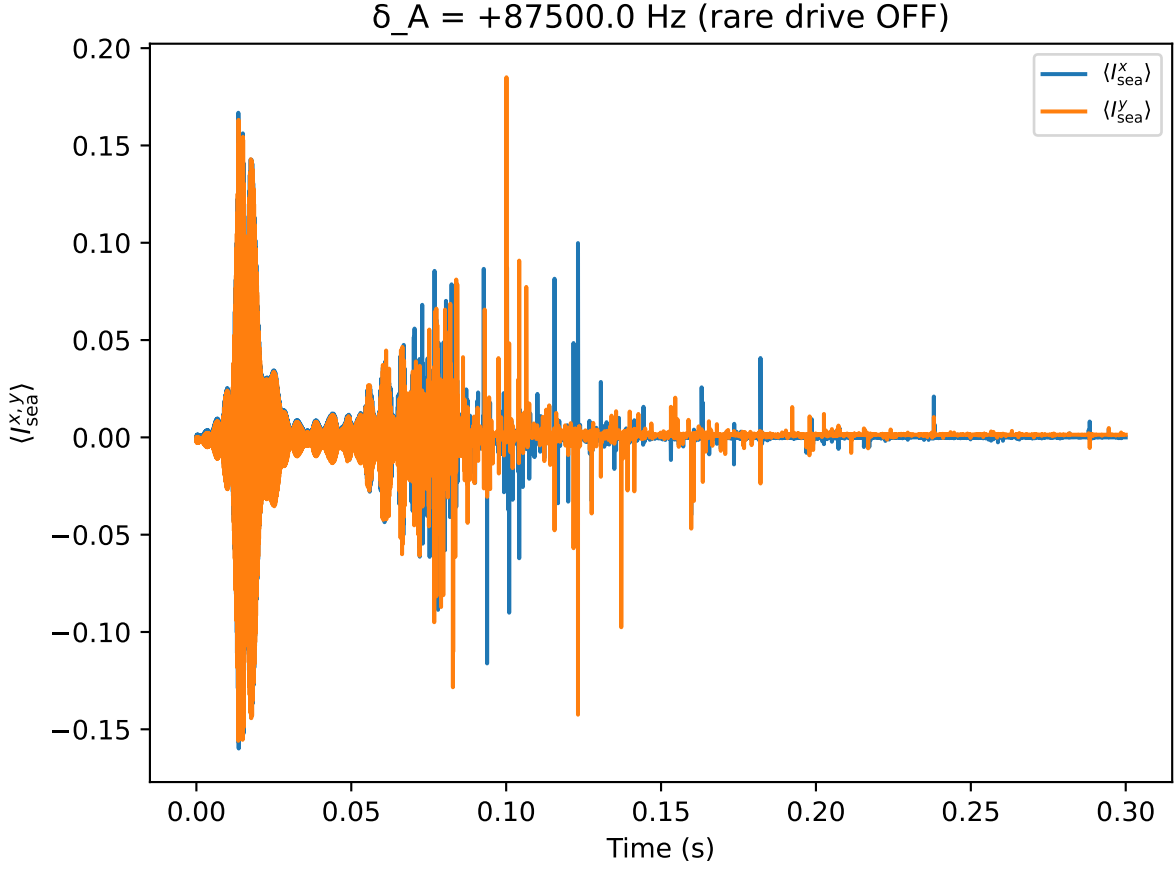

δ_A = +75000.0 Hz
6
4
2
0
−2
−4
−6
$\langle I^z_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)
$\langle I^z_{sea} \rangle$, rare OFF
$\langle I^z_{sea} \rangle$, rare ON

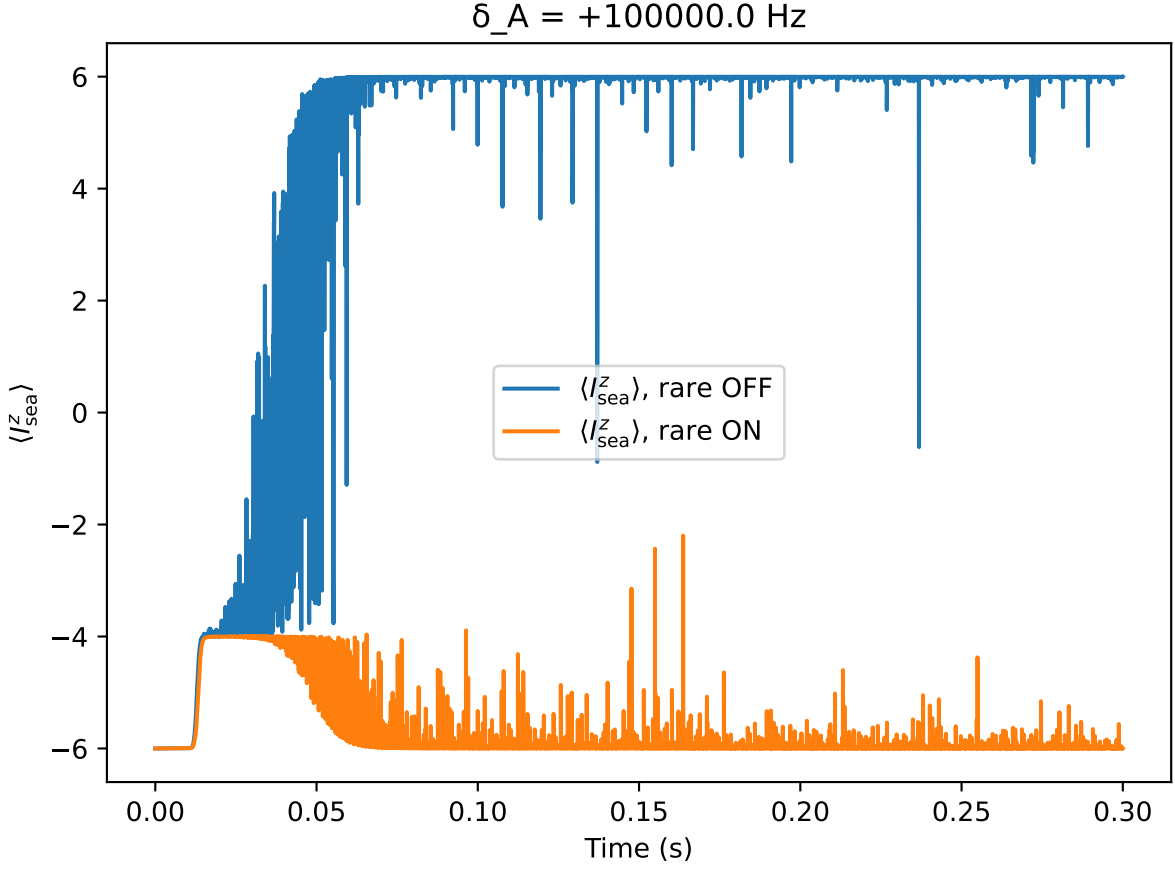

δ_A = +75000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
Time (s)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0576 s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30

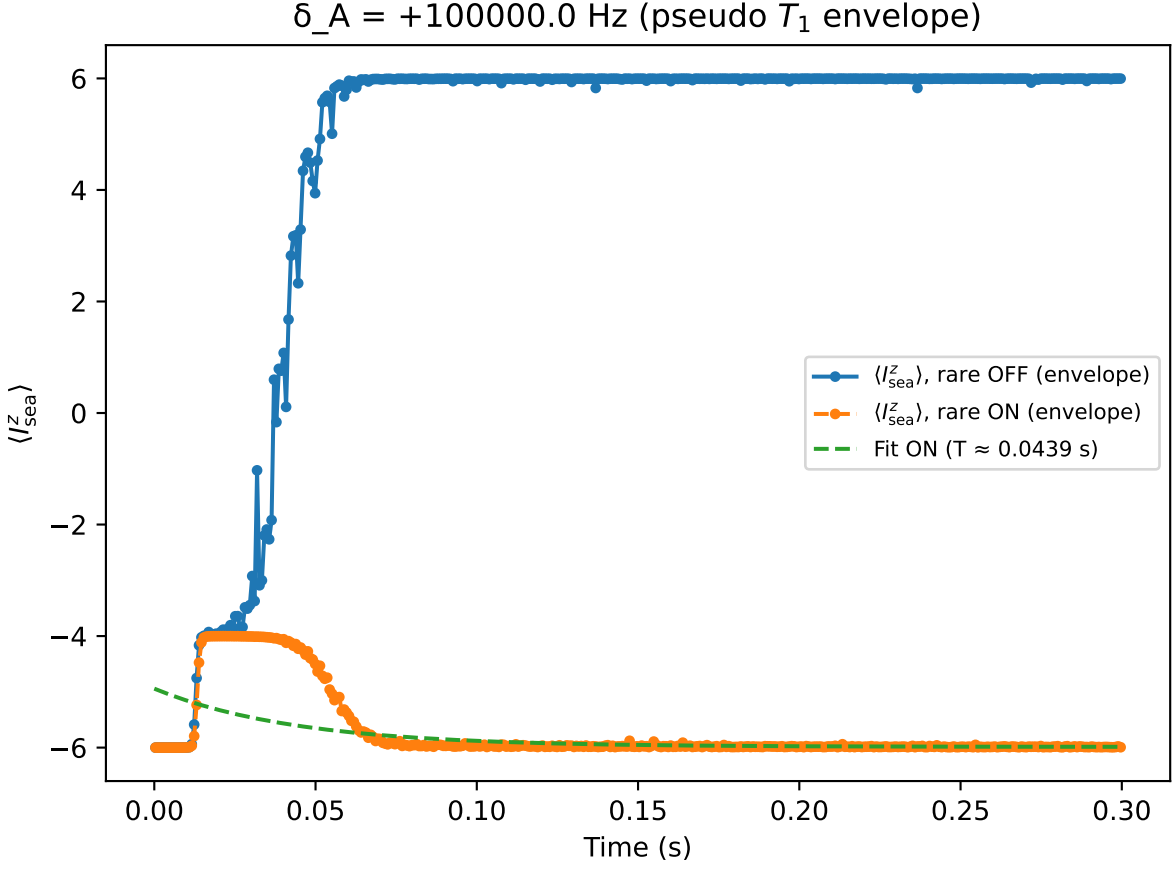

δ_A = +75000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
$\langle I^{x,y}_{sea} \rangle$
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

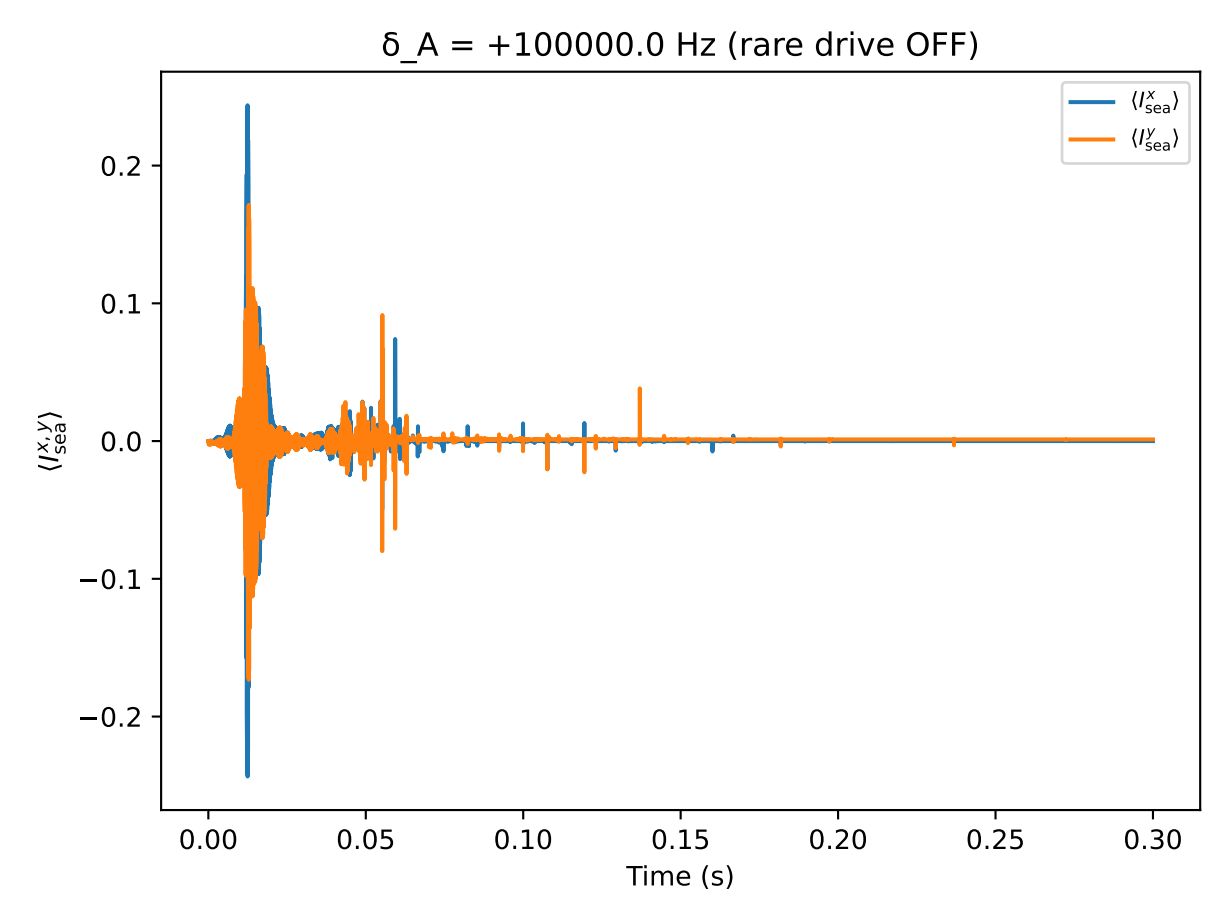

δ_A = +87500.0 Hz
6
4
2
0
−2
−4
−6
$\langle I^z_{sea} \rangle$
$\langle I^z_{sea} \rangle$, rare OFF
$\langle I^z_{sea} \rangle$, rare ON
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)


δ_A = +87500.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0406 s)


δ_A = +87500.0 Hz (rare drive OFF)
$\langle I^{x}_{\mathrm{sea}} \rangle$
$\langle I^{y}_{\mathrm{sea}} \rangle$
$\langle I^{x,y}_{\mathrm{sea}} \rangle$
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)


δ_A = +100000.0 Hz
$\langle I^z_{sea} \rangle$
$\langle I^z_{sea} \rangle$, rare OFF
$\langle I^z_{sea} \rangle$, rare ON
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30


δ_A = +100000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0439 s)


δ_A = +100000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
0.2
0.1
0.0
−0.1
−0.2
$\langle I^{x,y}_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

T-like decay fits from ⟨I^z_sea⟩ traces

delta_Hz	T_Iz_sea_off	T_Iz_sea_on
+0.0	0.188	47.6
+12500.0	0.0442	0.0886
+25000.0	0.0178	0.0368
+37500.0	NA	0.0342
+50000.0	0.0217	0.0142
+62500.0	NA	0.014
+75000.0	NA	0.0576
+87500.0	NA	0.0406
+100000.0	NA	0.0439