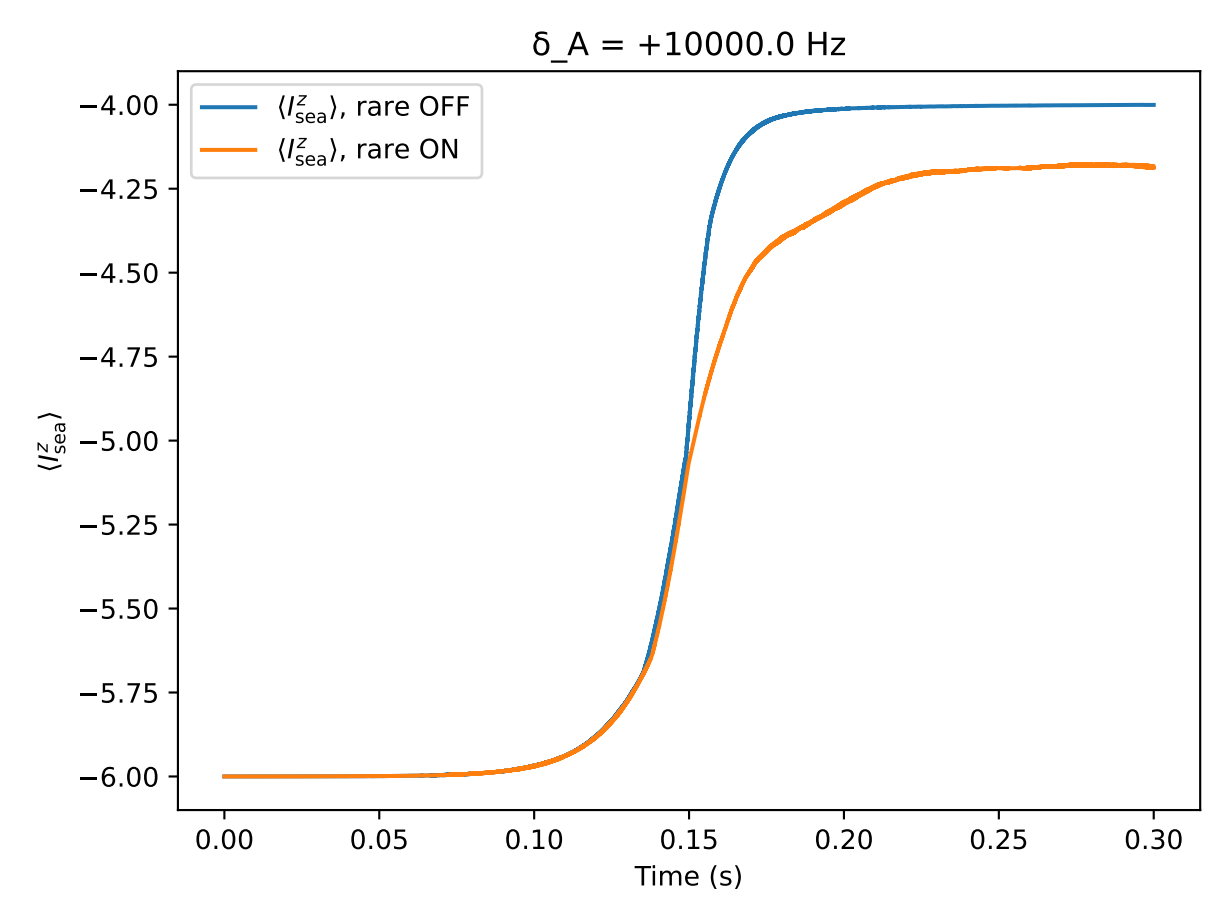
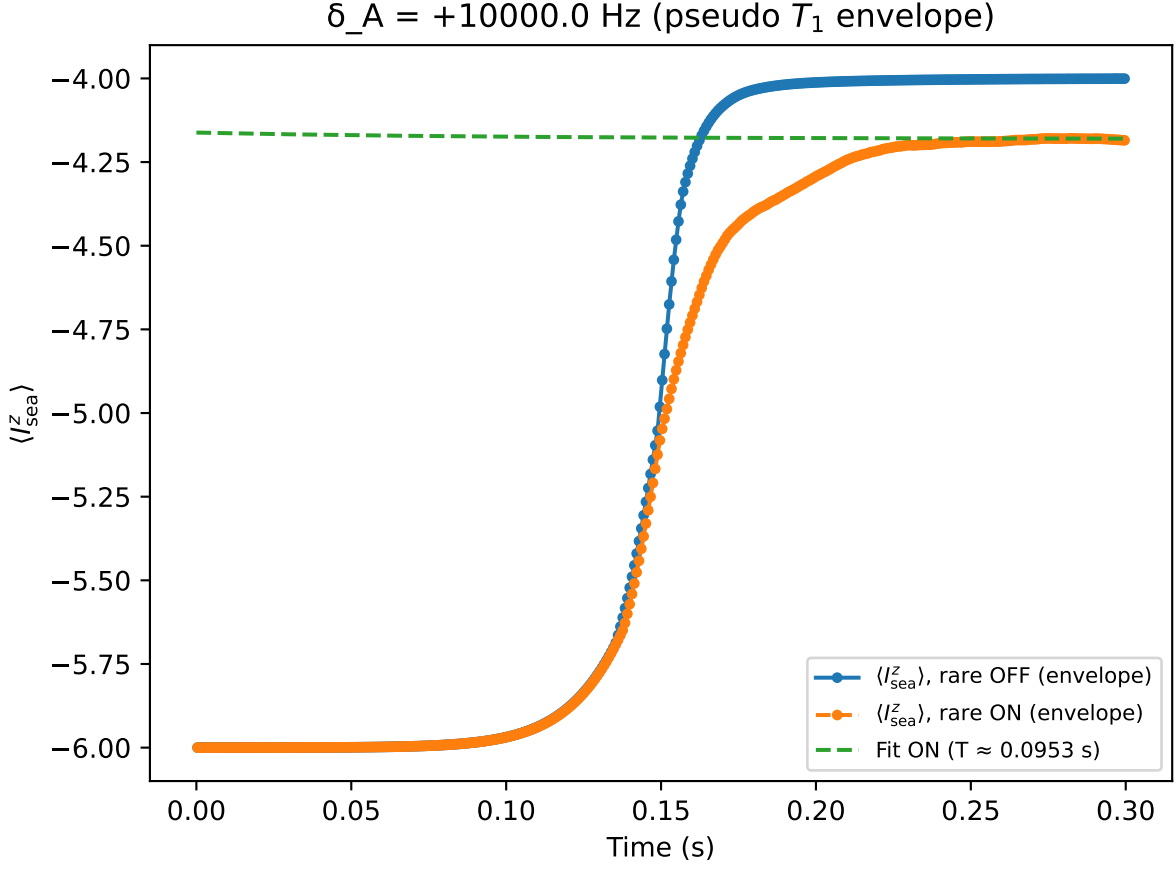
Sea detuning sweep report (Ga sea / Al rare)

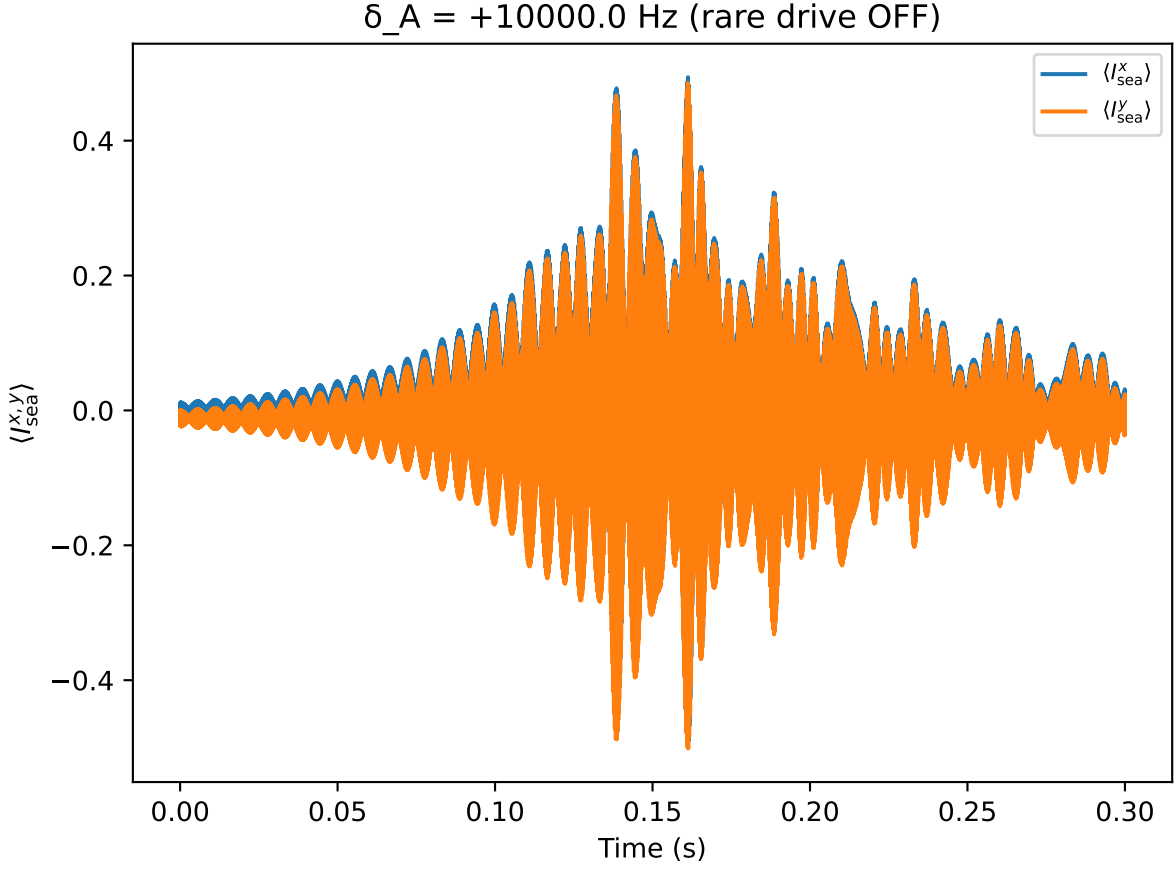
Global parameters (constant across sweep):

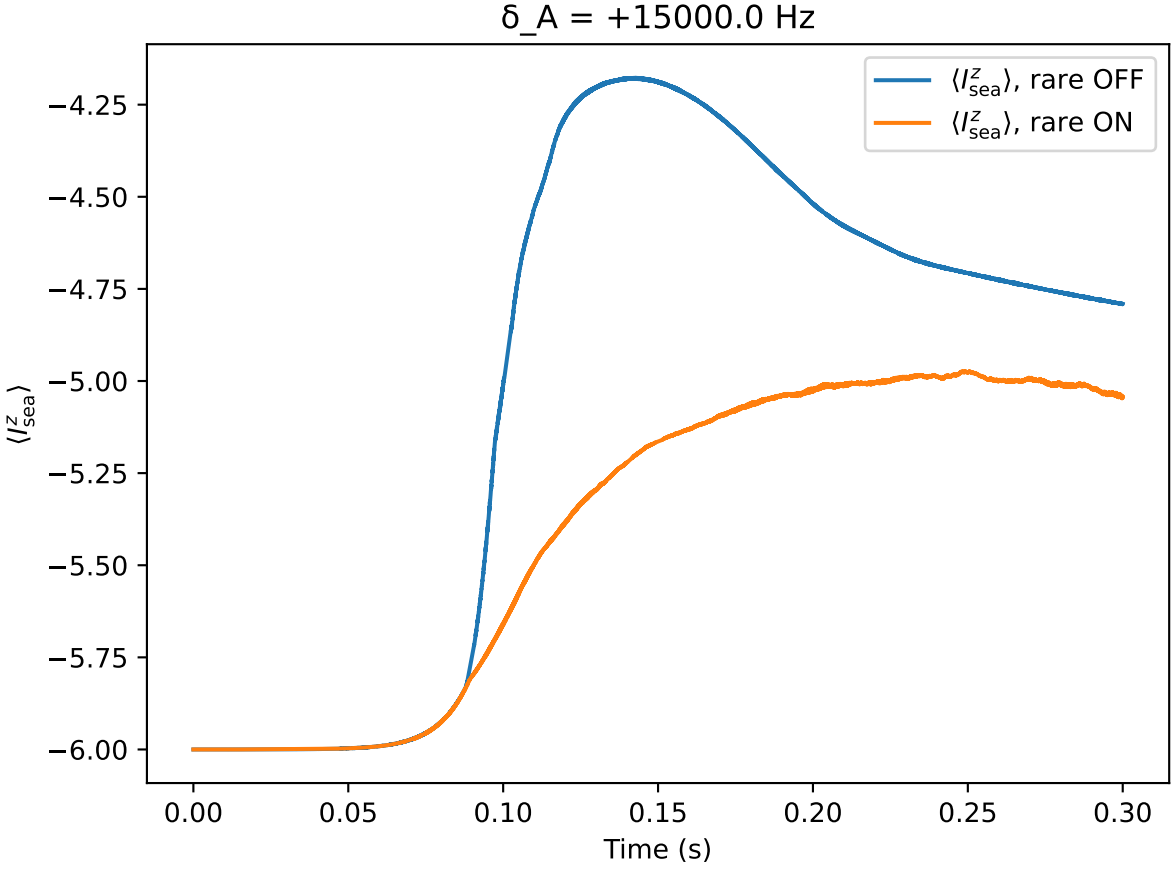
f_Az (sea Larmor)	= 39.062 MHz
f_Rz (rare Larmor)	= 33.308 MHz
f1A (sea Rabi)	= 0.020 kHz
f1R (rare Rabi)	= 0.010 kHz
gamma_sea	= 8.181e+07 rad·s⁻¹·T⁻¹
gamma_rare	= 6.976e+07 rad·s⁻¹·T⁻¹
B0_common	= 3.000 T
B1_sea	= 1.536e-06 T
B1_rare	= 9.007e-07 T
dipolar_scale_SI	= 1.055e-41
shell_scale	= 0.300 nm
t_final	= 3.000e-01 s
steps	= 20000
n_sea	= 12
phi_sea	= 1.571 rad
phi_rare	= 1.571 rad
sea_spin_type	= 1/2
rare_spin_type	= 1/2

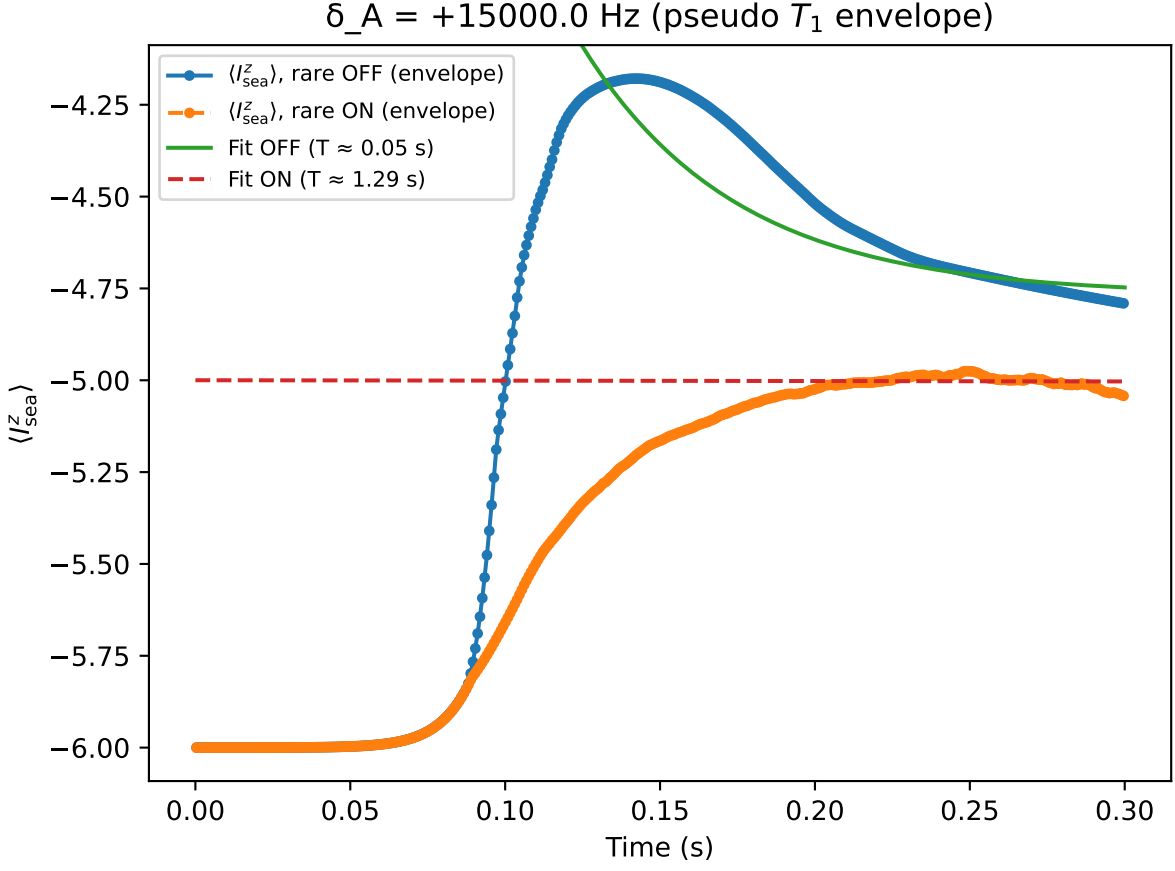
Sea detunings (δ_A = f_Az - f_rf,A) in Hz:
  +10000.0, +15000.0, +20000.0, +25000.0, +30000.0, +35000.0, +40000.0, +45000.0, +50

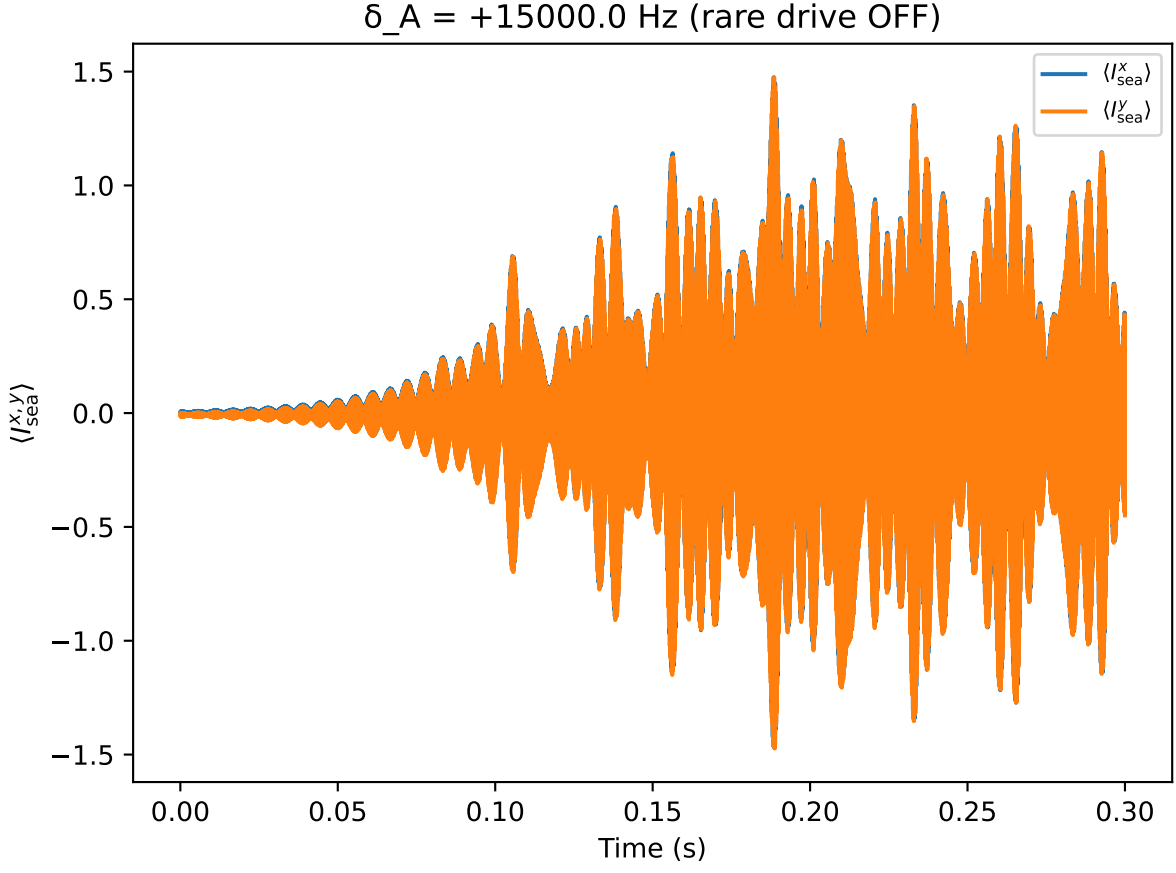

δ_A = +10000.0 Hz
⟨I^z_sea⟩, rare OFF
⟨I^z_sea⟩, rare ON
−4.00
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
⟨I^z_sea⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

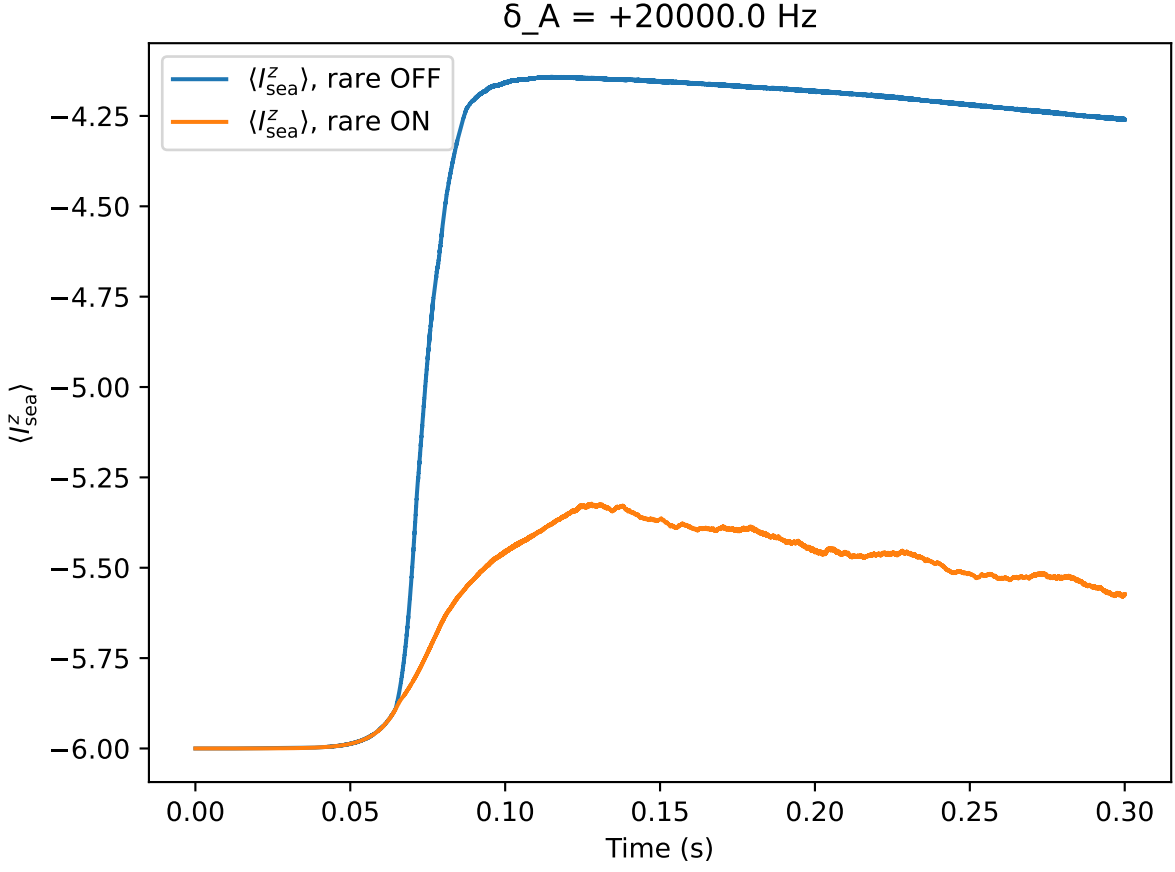

δ_A = +10000.0 Hz (pseudo T_1 envelope)
−4.00
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
$\langle I^z_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0953 s)

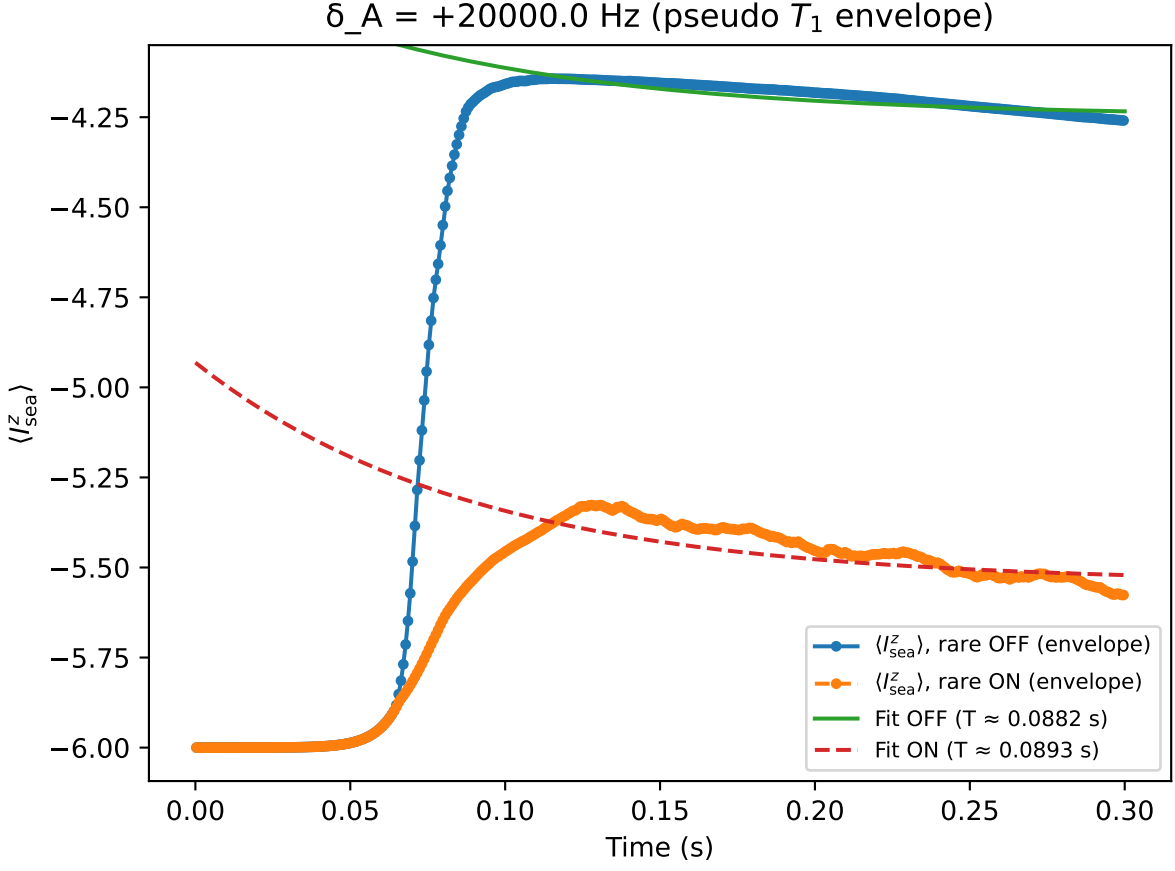

δ_A = +10000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
0.4
0.2
0.0
−0.2
−0.4
$\langle I^{x,y}_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

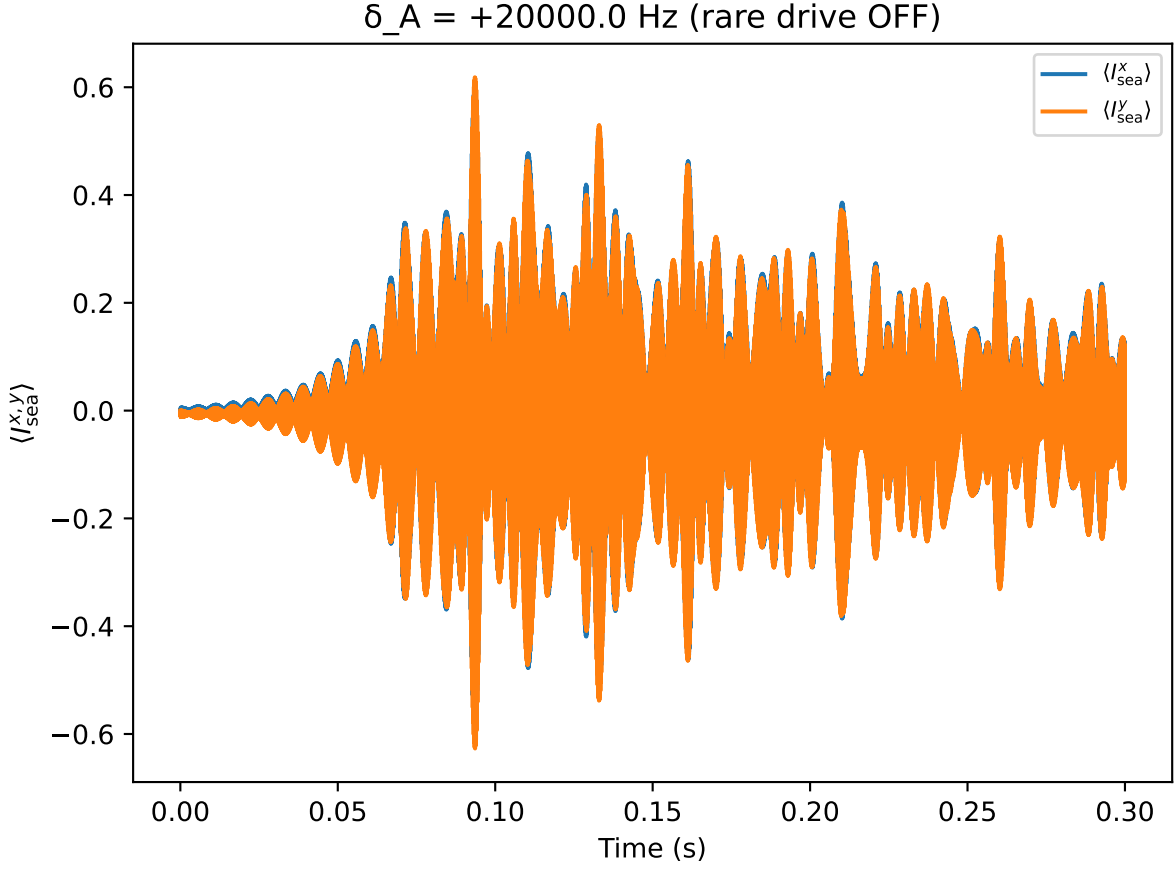

δ_A = +15000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

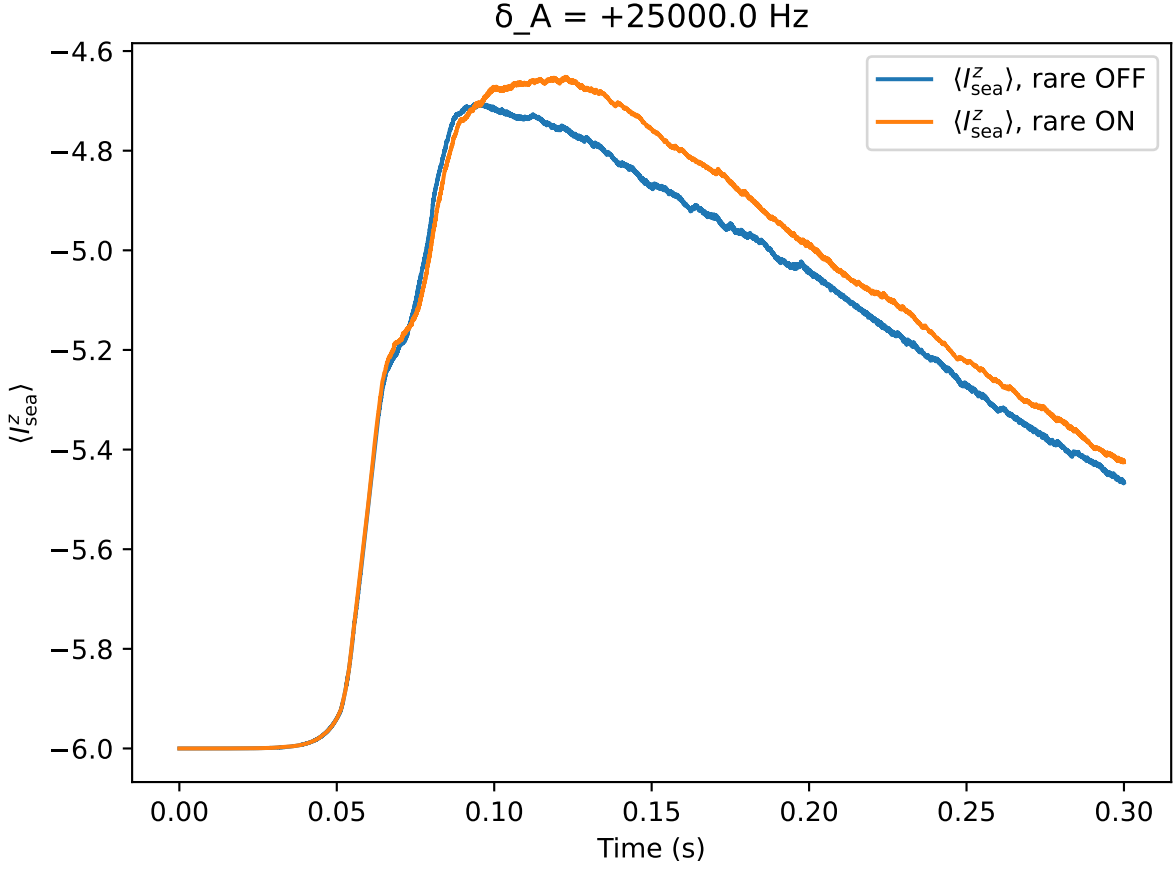

δ_A = +15000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.05 s)
Fit ON (T ≈ 1.29 s)
$\langle I^z_{sea} \rangle$
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

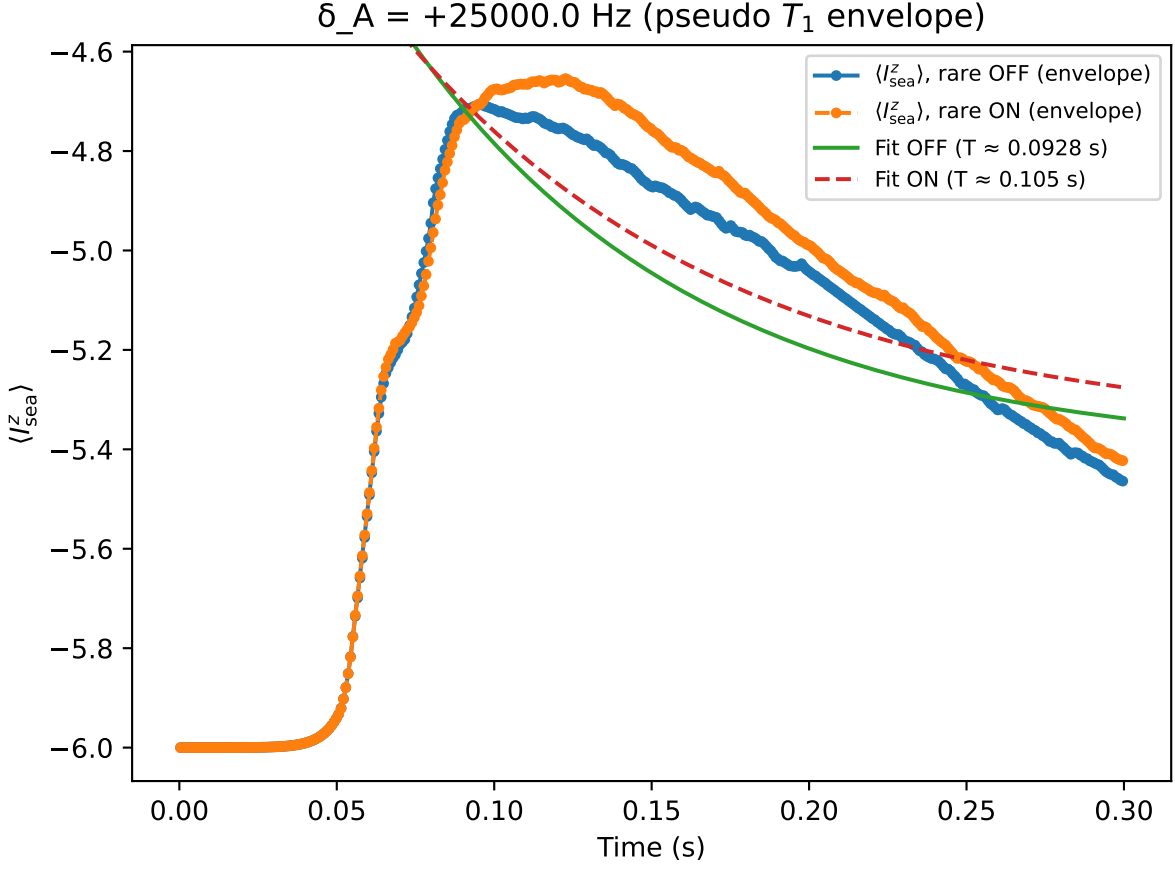

δ_A = +15000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
$\langle I^{x,y}_{sea} \rangle$
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

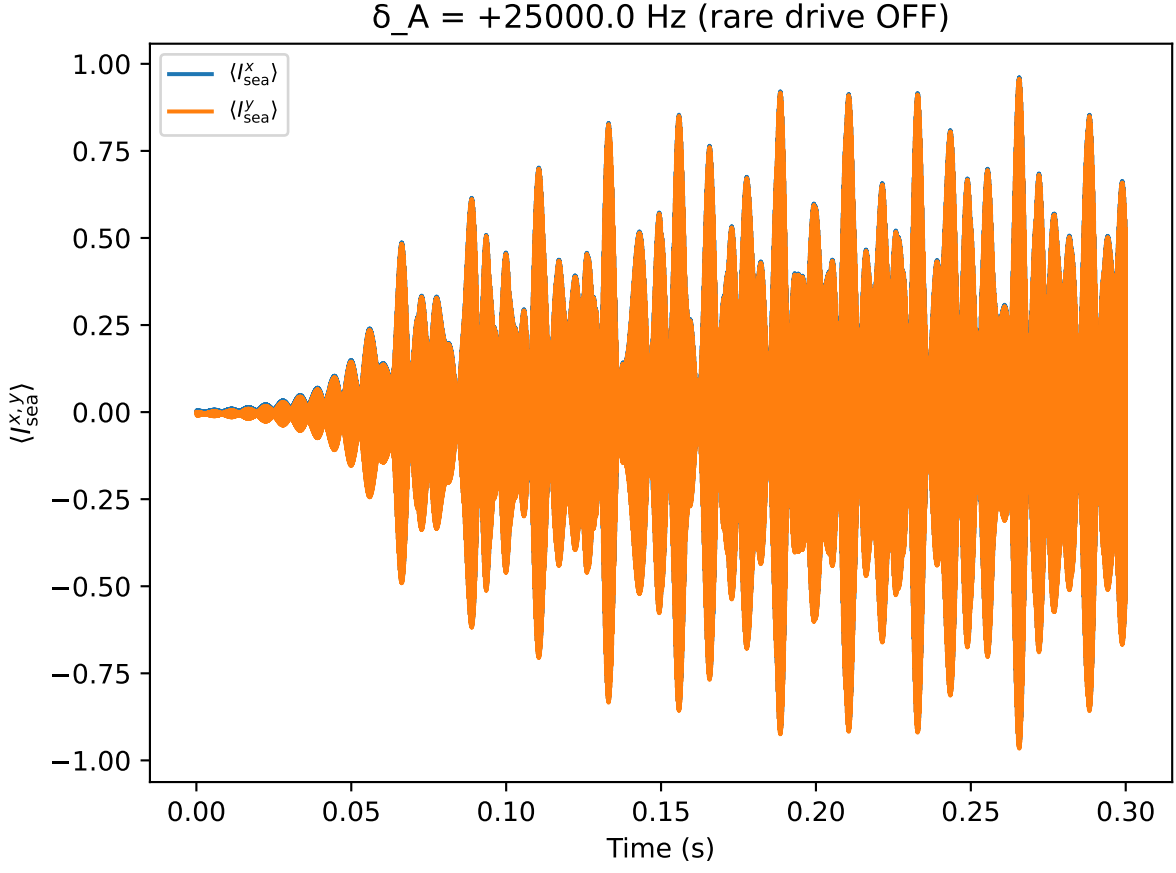

δ_A = +20000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

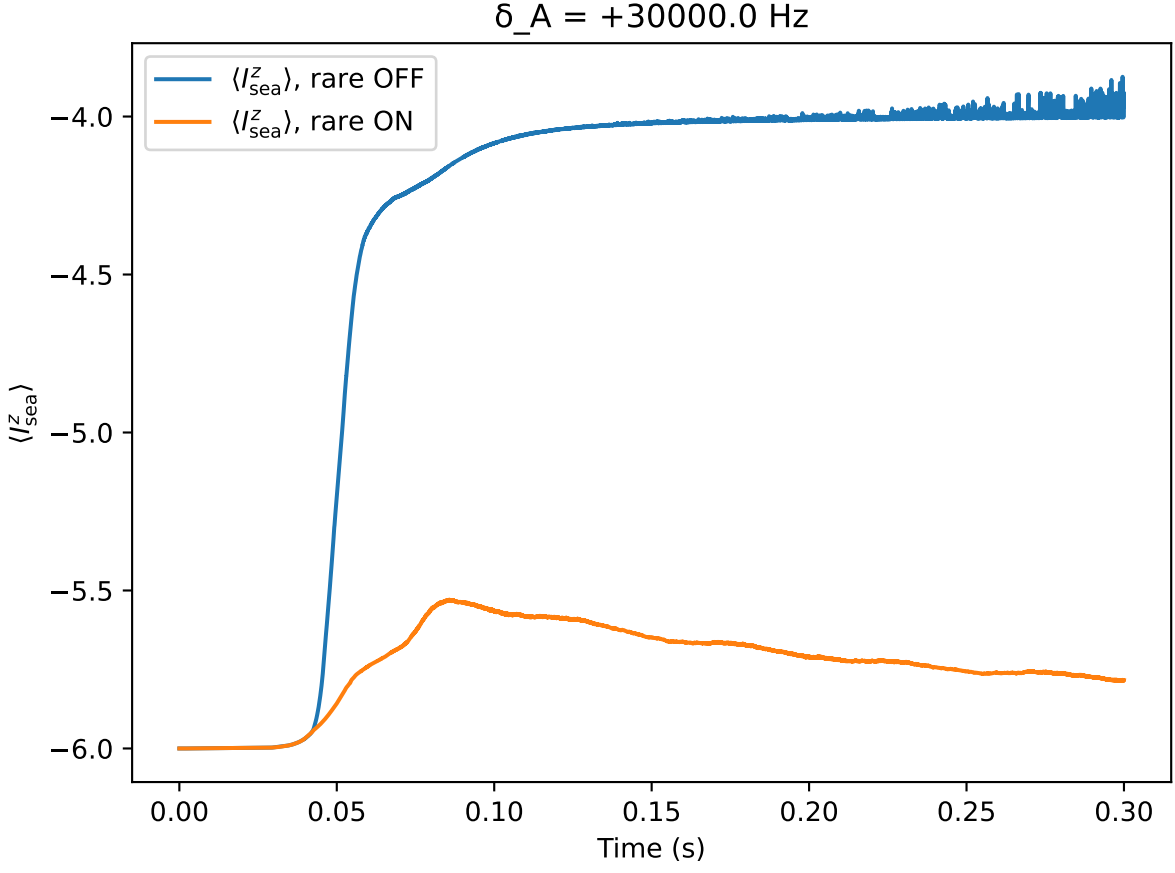

δ_A = +20000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.0882 s)
Fit ON (T ≈ 0.0893 s)

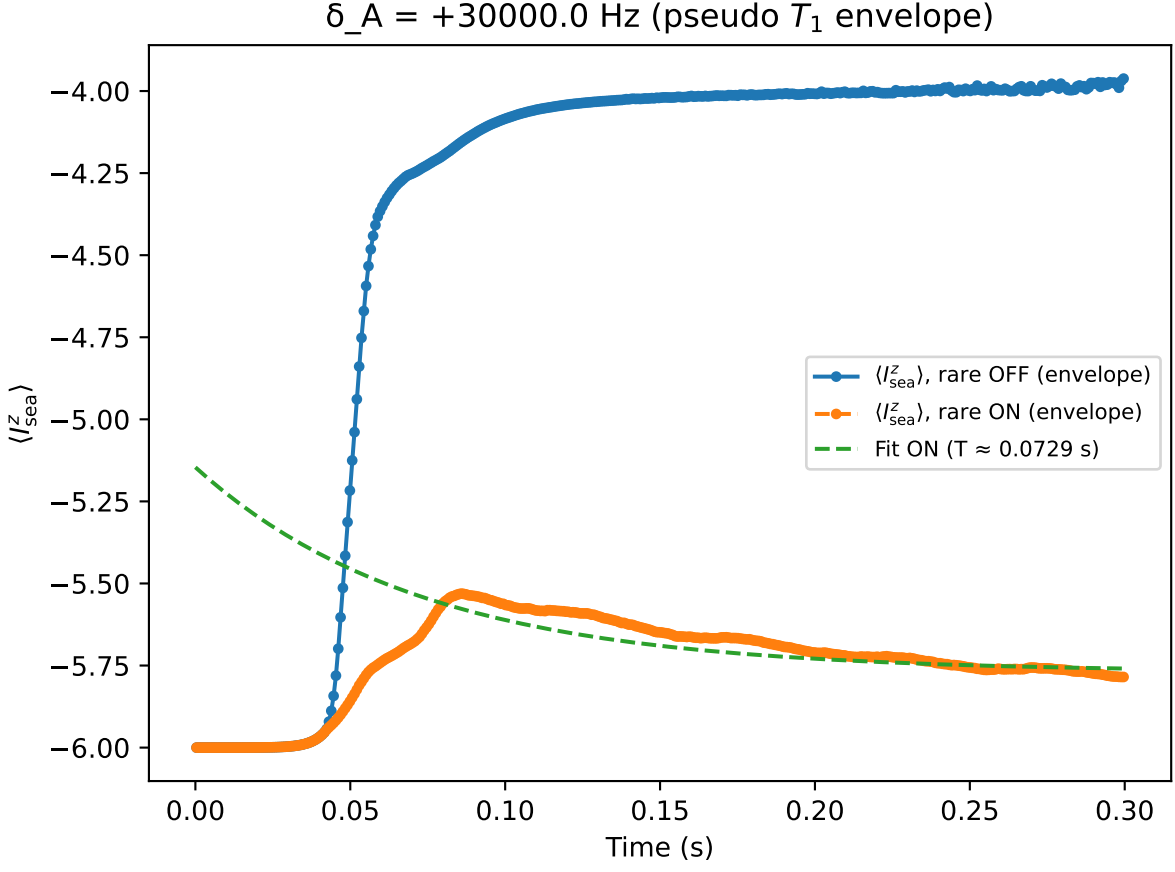

δ_A = +20000.0 Hz (rare drive OFF)
$\langle I^x_{\mathrm{sea}} \rangle$
$\langle I^y_{\mathrm{sea}} \rangle$
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
$\langle I^{x,y}_{\mathrm{sea}} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

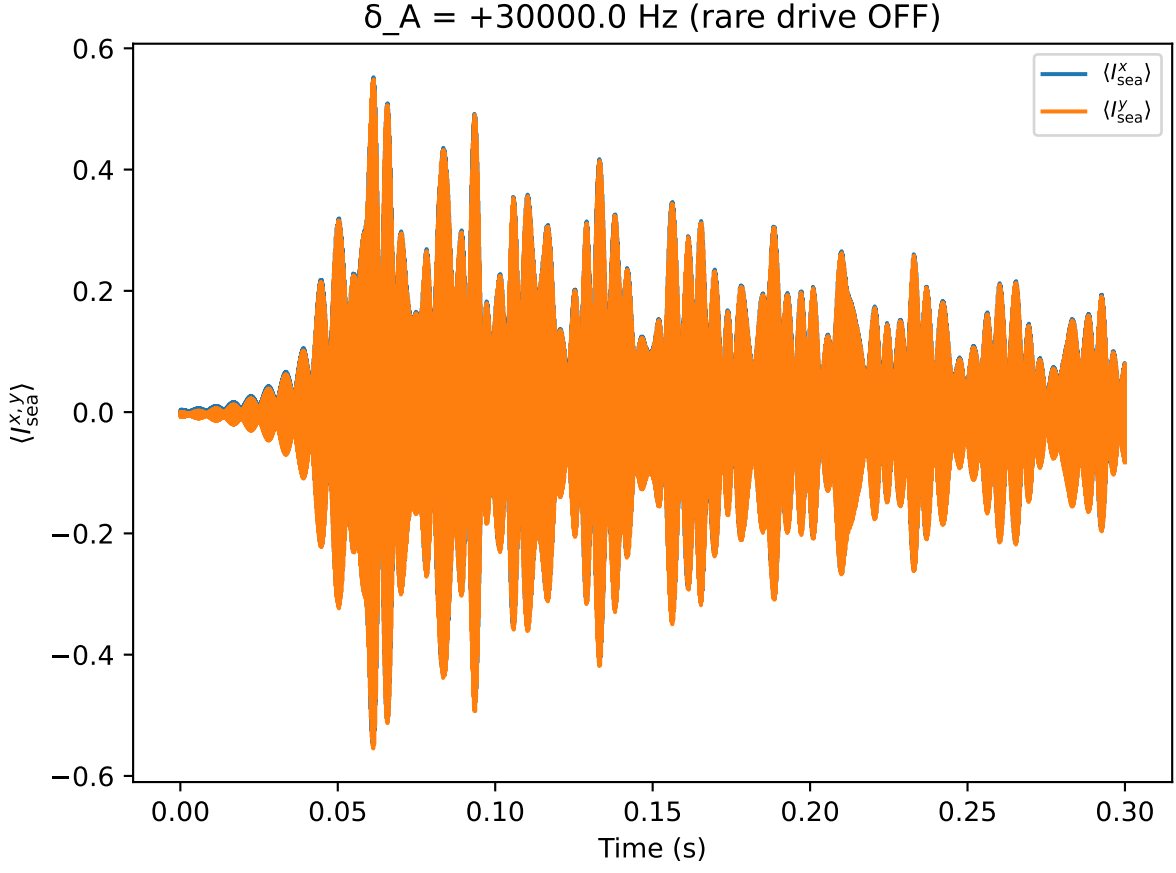

δ_A = +25000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−4.6
−4.8
−5.0
−5.2
−5.4
−5.6
−5.8
−6.0
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

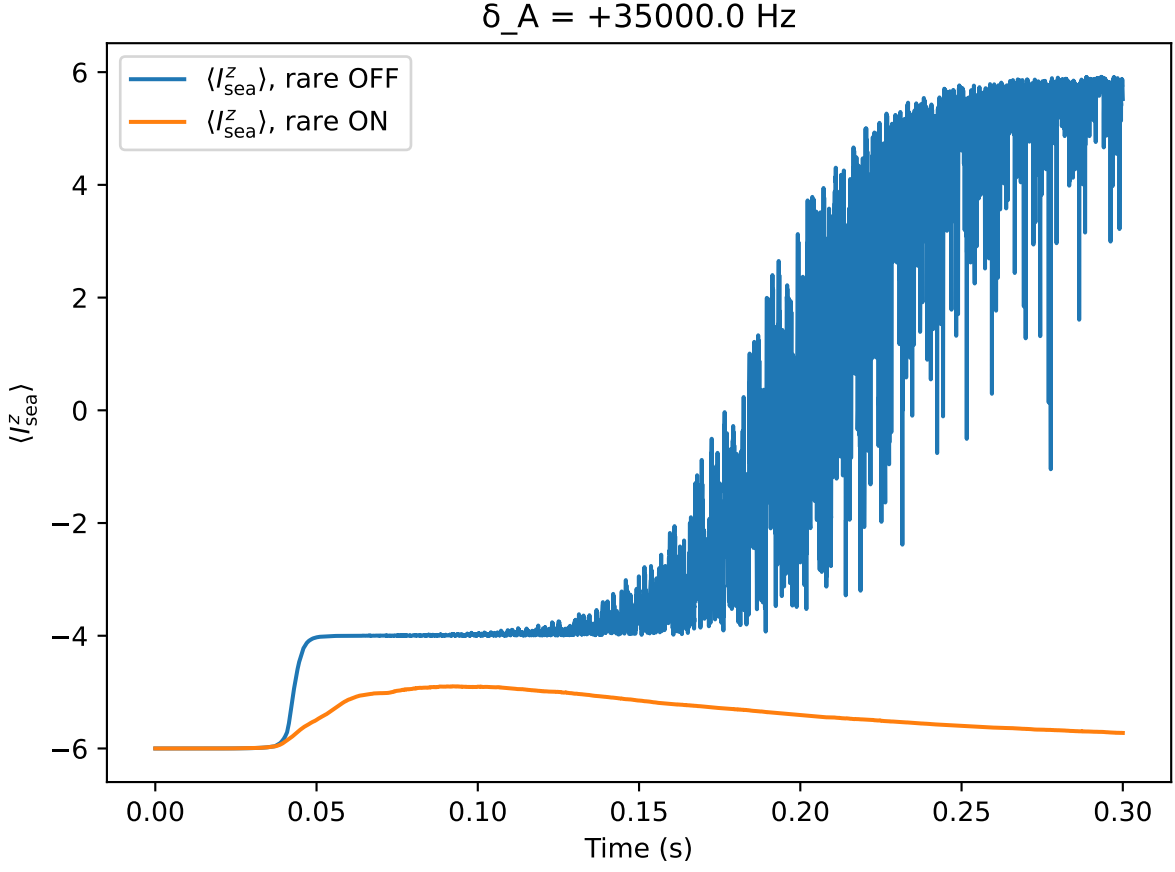

δ_A = +25000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.0928 s)
Fit ON (T ≈ 0.105 s)
$\langle I^z_{sea} \rangle$
−4.6
−4.8
−5.0
−5.2
−5.4
−5.6
−5.8
−6.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

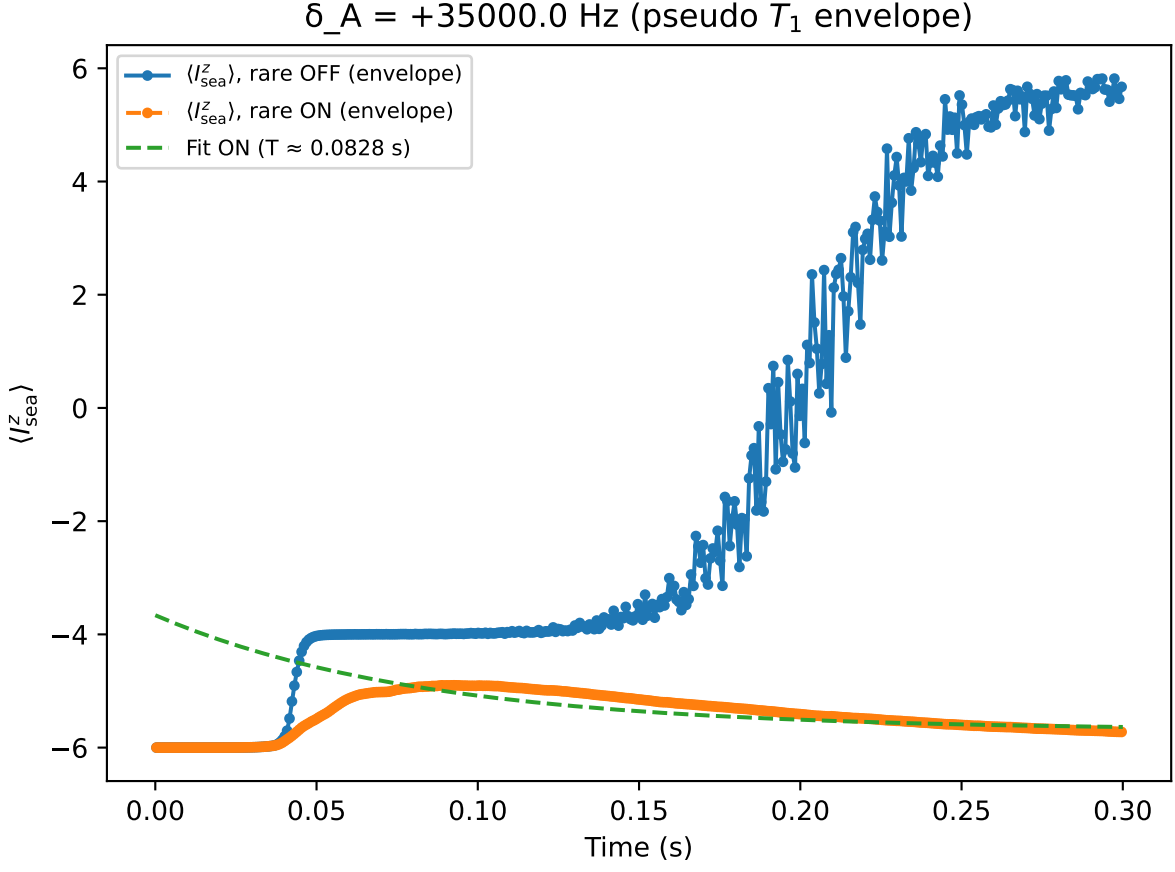

δ_A = +25000.0 Hz (rare drive OFF)
⟨I^x_sea⟩
⟨I^y_sea⟩
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
⟨I^{x,y}_sea⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

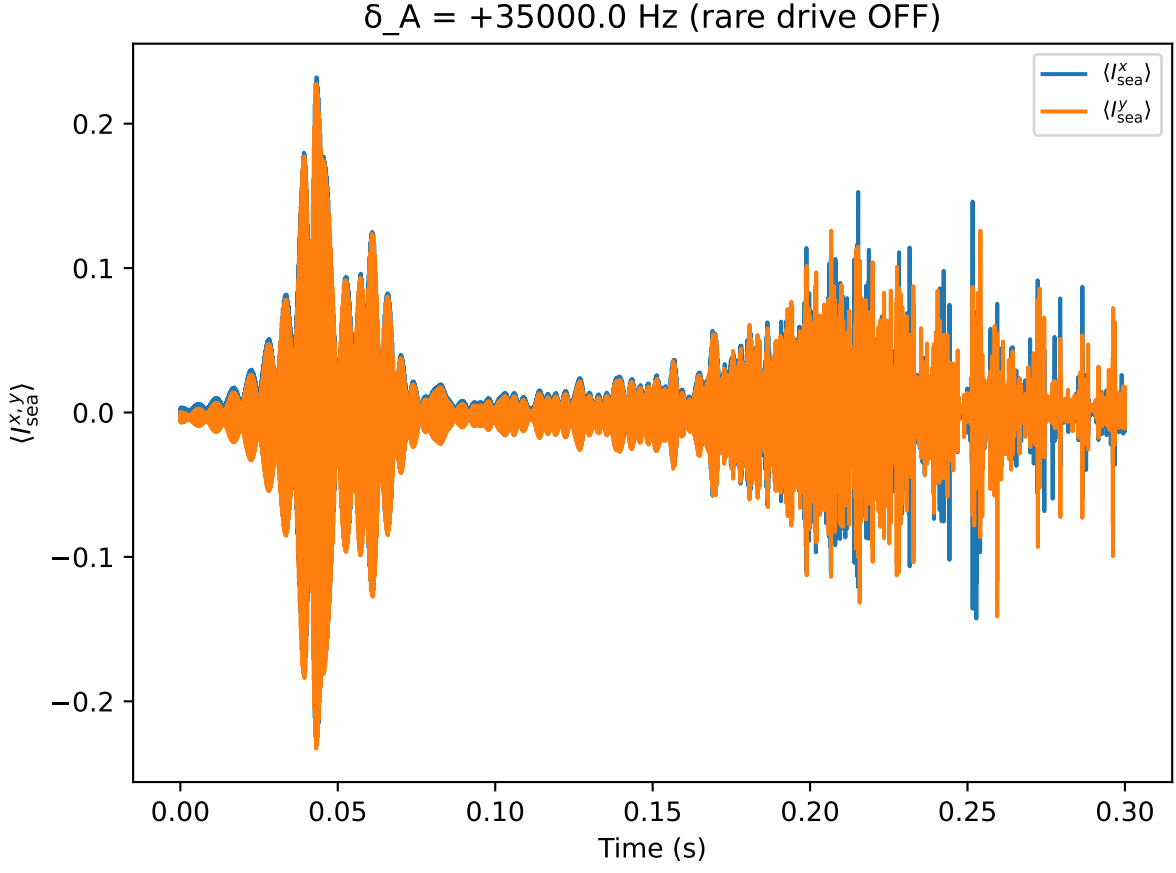

δ_A = +30000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−4.0
−4.5
−5.0
−5.5
−6.0
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

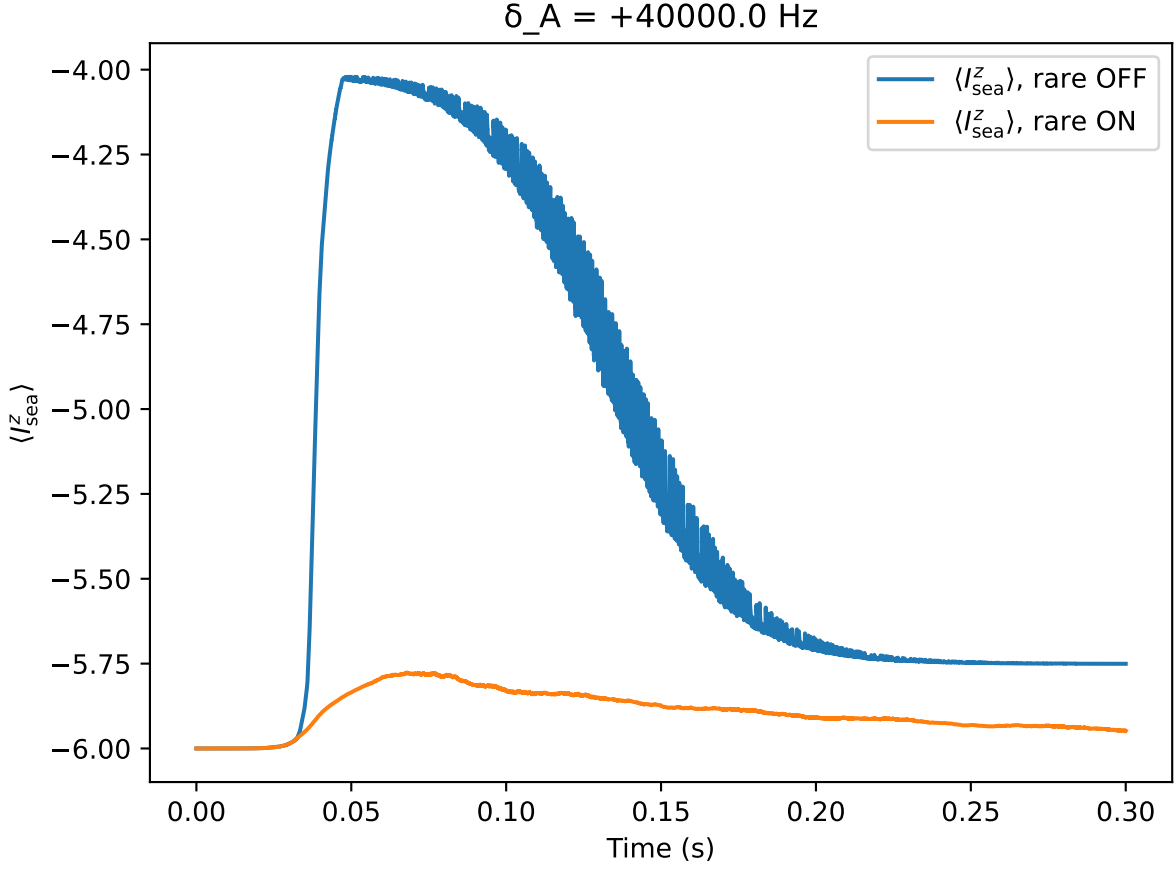

δ_A = +30000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$
Time (s)
−4.00
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0729 s)

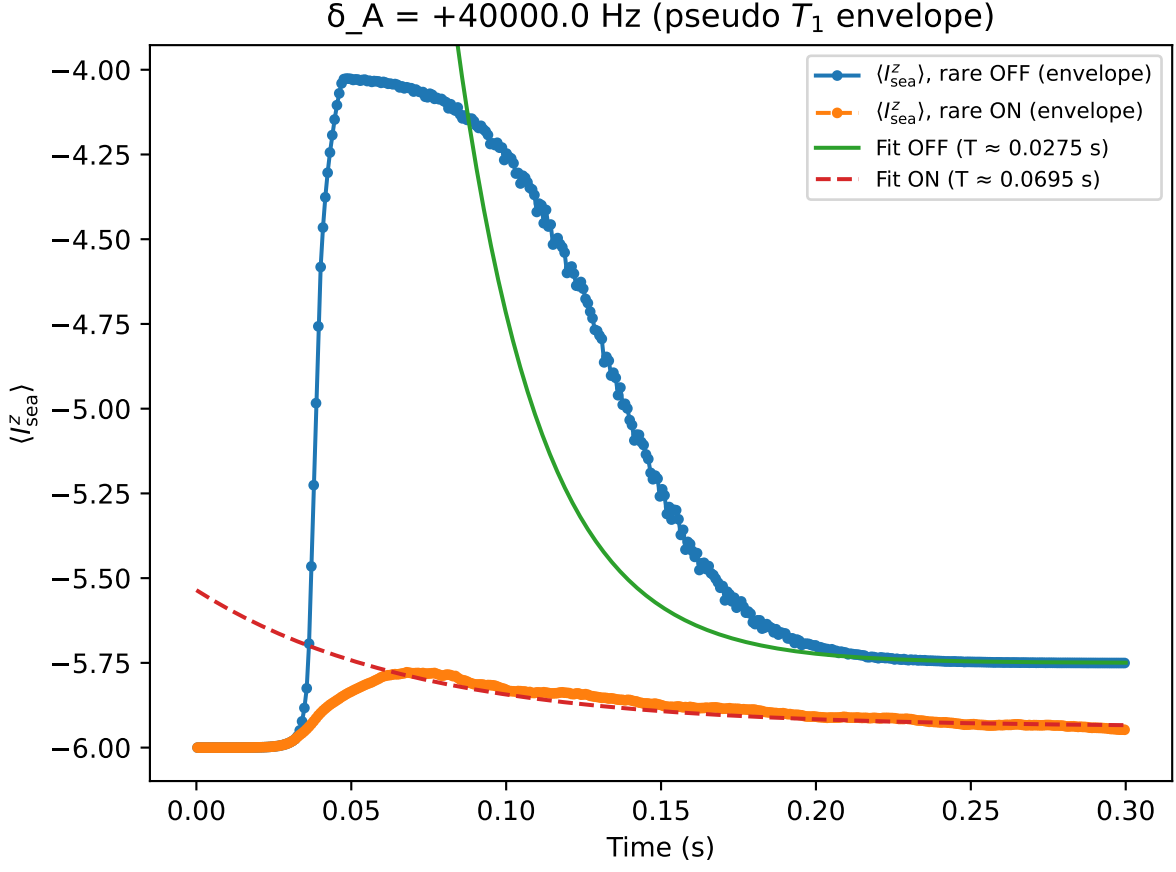

δ_A = +30000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
$\langle I^{x,y}_{sea} \rangle$
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

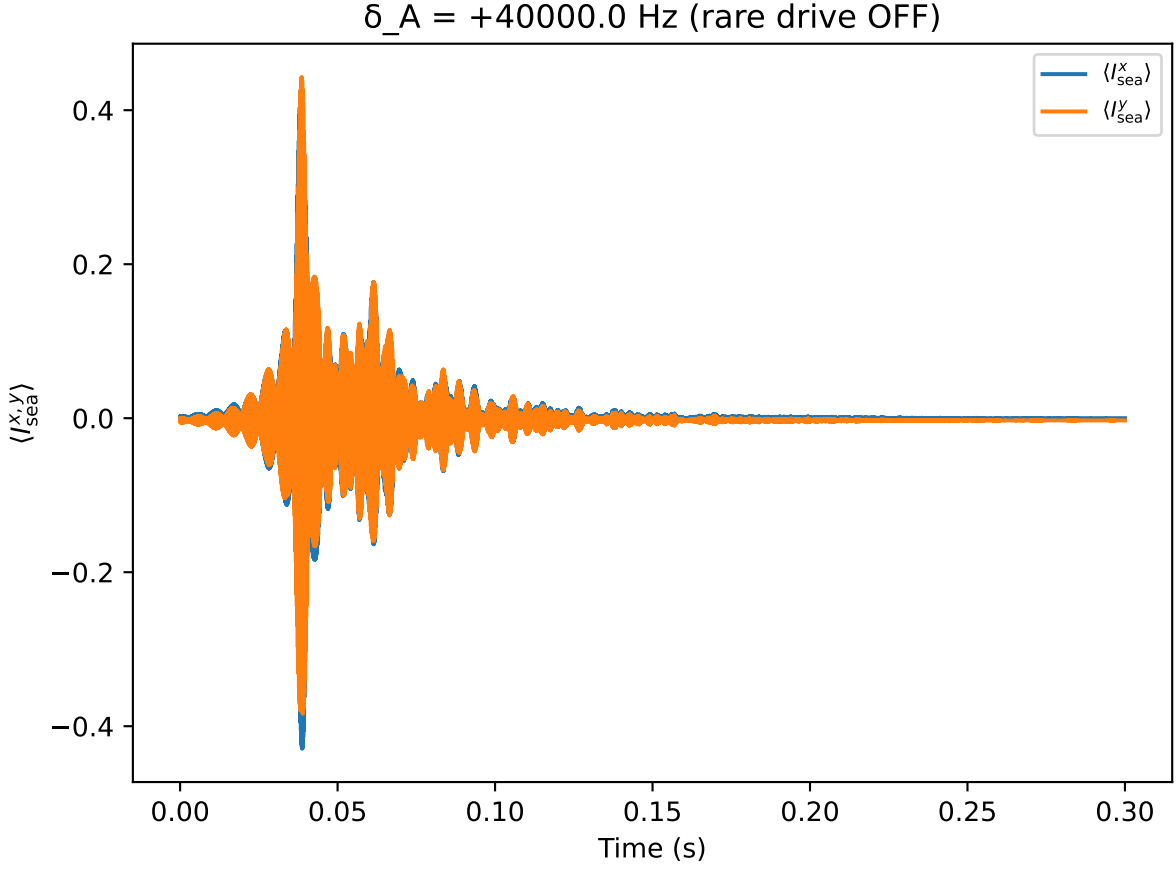

δ_A = +35000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
⟨I^z_{sea}⟩
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30

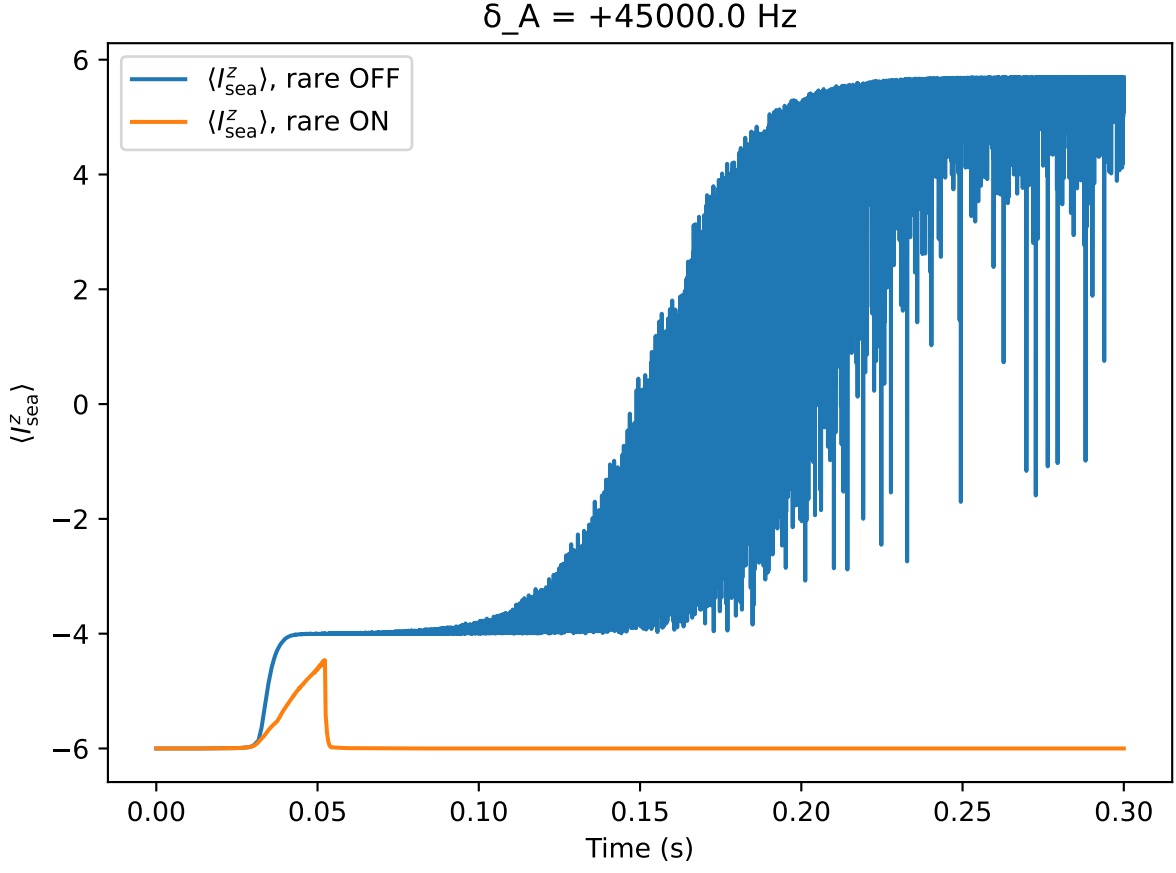

δ_A = +35000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0828 s)
$\langle I^z_{sea} \rangle$
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30

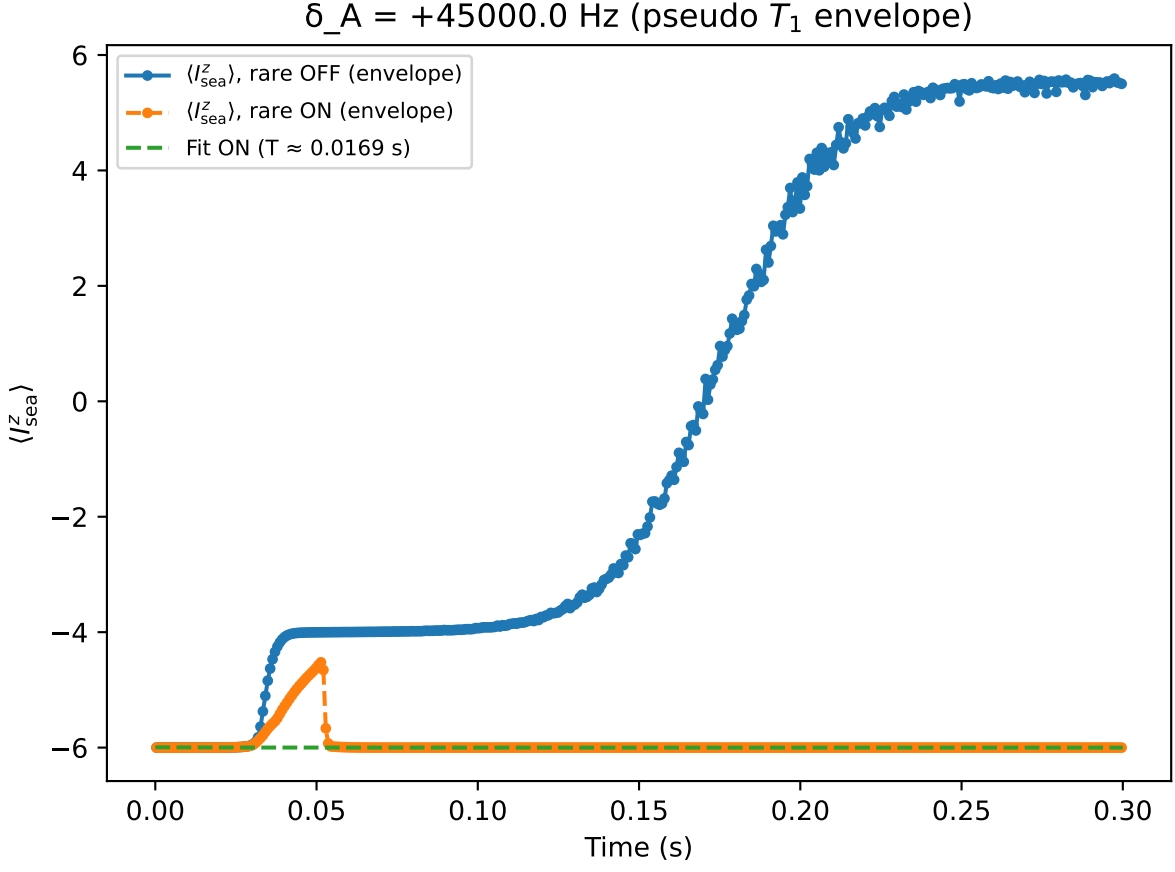

δ_A = +35000.0 Hz (rare drive OFF)
$\langle I^x_{sea} \rangle$
$\langle I^y_{sea} \rangle$
0.2
0.1
0.0
−0.1
−0.2
$\langle I^{x,y}_{sea} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

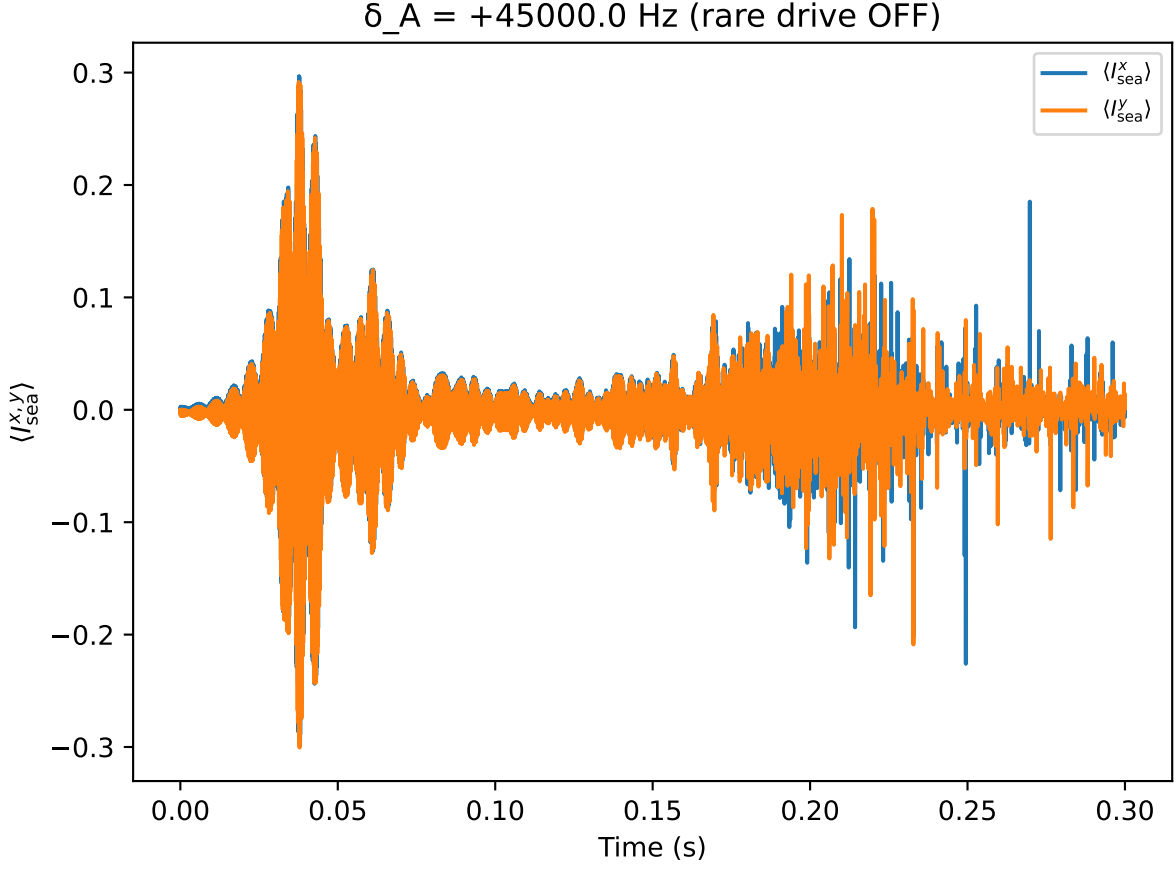

δ_A = +40000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
−4.00
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
⟨I^z_{sea}⟩
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

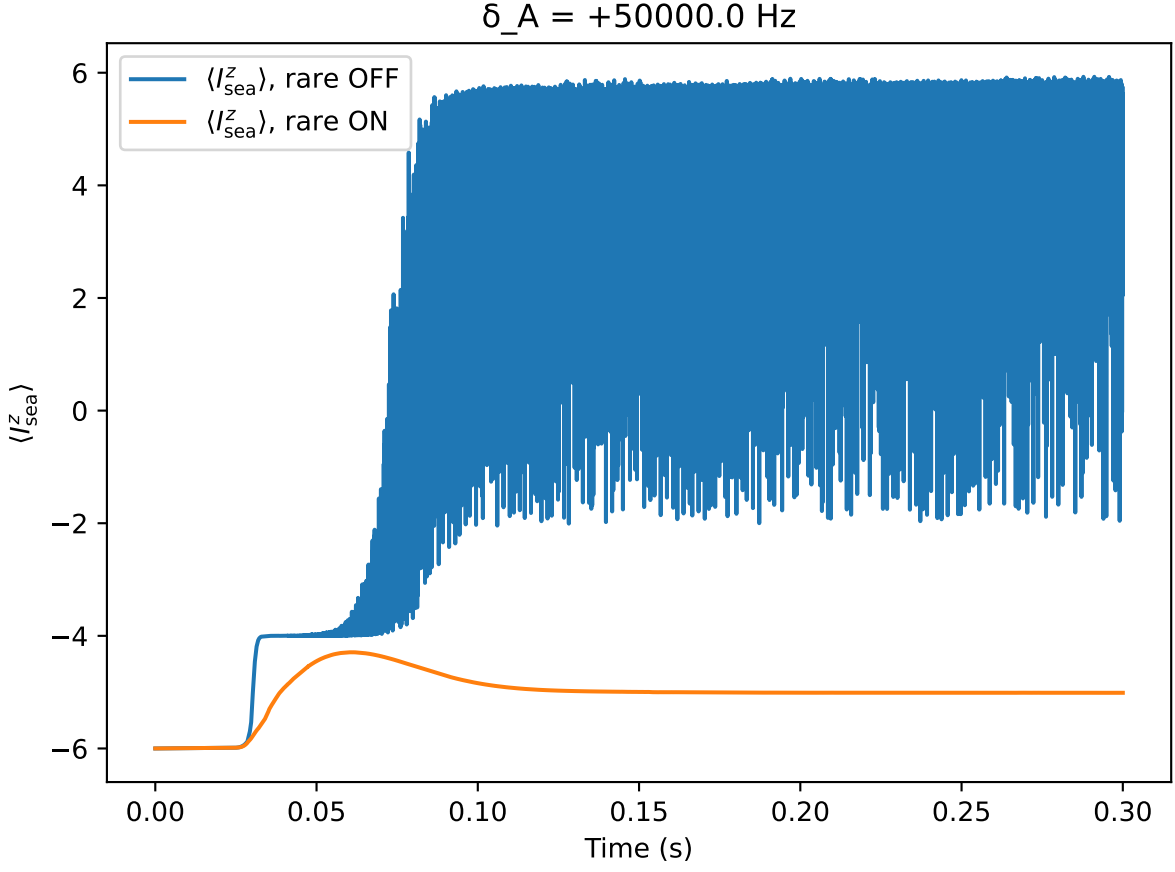

δ_A = +40000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit OFF (T ≈ 0.0275 s)
Fit ON (T ≈ 0.0695 s)
$\langle I^z_{sea} \rangle$
−4.00
−4.25
−4.50
−4.75
−5.00
−5.25
−5.50
−5.75
−6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

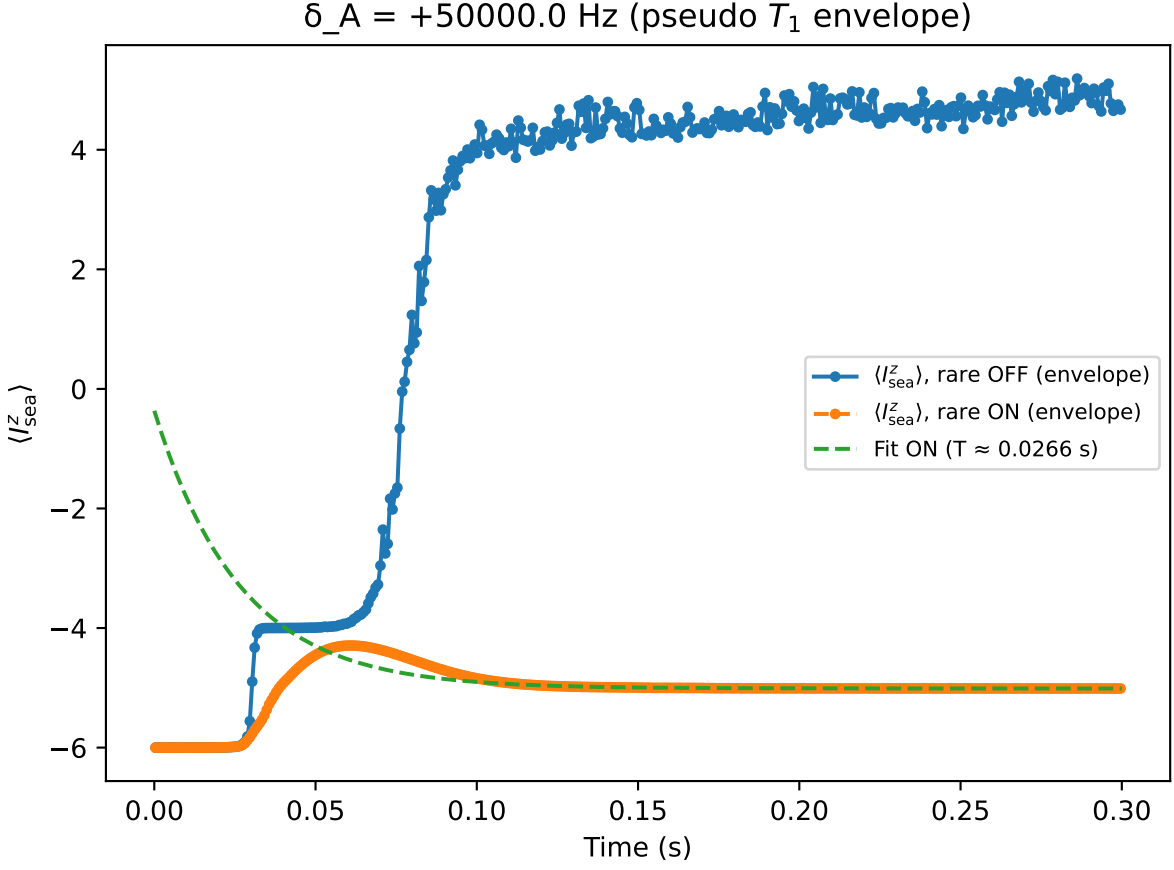

δ_A = +40000.0 Hz (rare drive OFF)
$\langle I^{x}_{\mathrm{sea}} \rangle$
$\langle I^{y}_{\mathrm{sea}} \rangle$
0.4
0.2
0.0
−0.2
−0.4
$\langle I^{x,y}_{\mathrm{sea}} \rangle$
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Time (s)

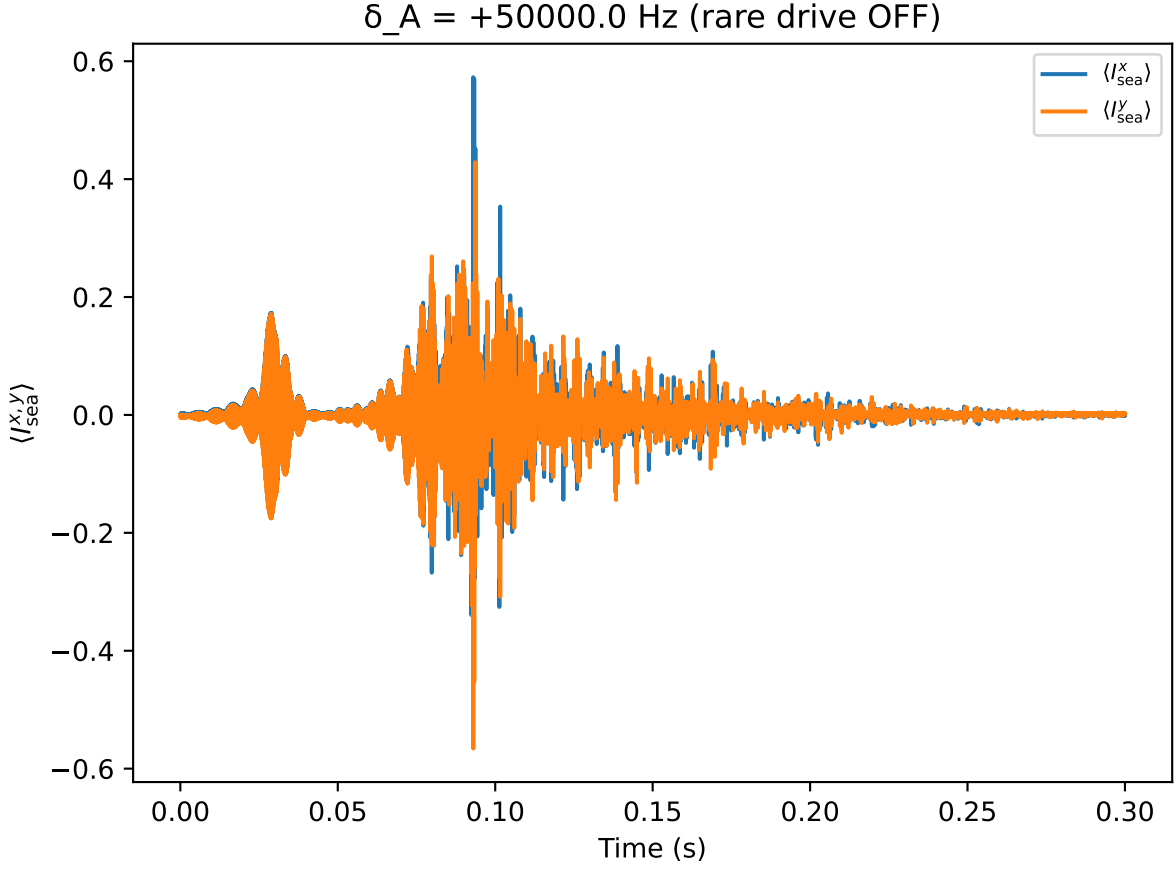

δ_A = +45000.0 Hz
⟨I^z_{sea}⟩, rare OFF
⟨I^z_{sea}⟩, rare ON
⟨I^z_{sea}⟩
Time (s)
6
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30


δ_A = +45000.0 Hz (pseudo T_1 envelope)
$\langle I^z_{sea} \rangle$, rare OFF (envelope)
$\langle I^z_{sea} \rangle$, rare ON (envelope)
Fit ON (T ≈ 0.0169 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 = +45000.0 Hz (rare drive OFF)
$\langle I^x_{\mathrm{sea}} \rangle$
$\langle I^y_{\mathrm{sea}} \rangle$
$\langle I^{x,y}_{\mathrm{sea}} \rangle$
0.3
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 = +50000.0 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 = +50000.0 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 ≈ 0.0266 s)
4
2
0
−2
−4
−6
0.00
0.05
0.10
0.15
0.20
0.25
0.30


δ_A = +50000.0 Hz (rare drive OFF)
$\langle I^{x}_{\mathrm{sea}} \rangle$
$\langle I^{y}_{\mathrm{sea}} \rangle$
$\langle I^{x,y}_{\mathrm{sea}} \rangle$
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
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
+10000.0	NA	0.0953
+15000.0	0.05	1.29
+20000.0	0.0882	0.0893
+25000.0	0.0928	0.105
+30000.0	NA	0.0729
+35000.0	NA	0.0828
+40000.0	0.0275	0.0695
+45000.0	NA	0.0169
+50000.0	NA	0.0266