

MRI 2nd Activity

Team SPECT

Mei Li Luisa Cham Perez

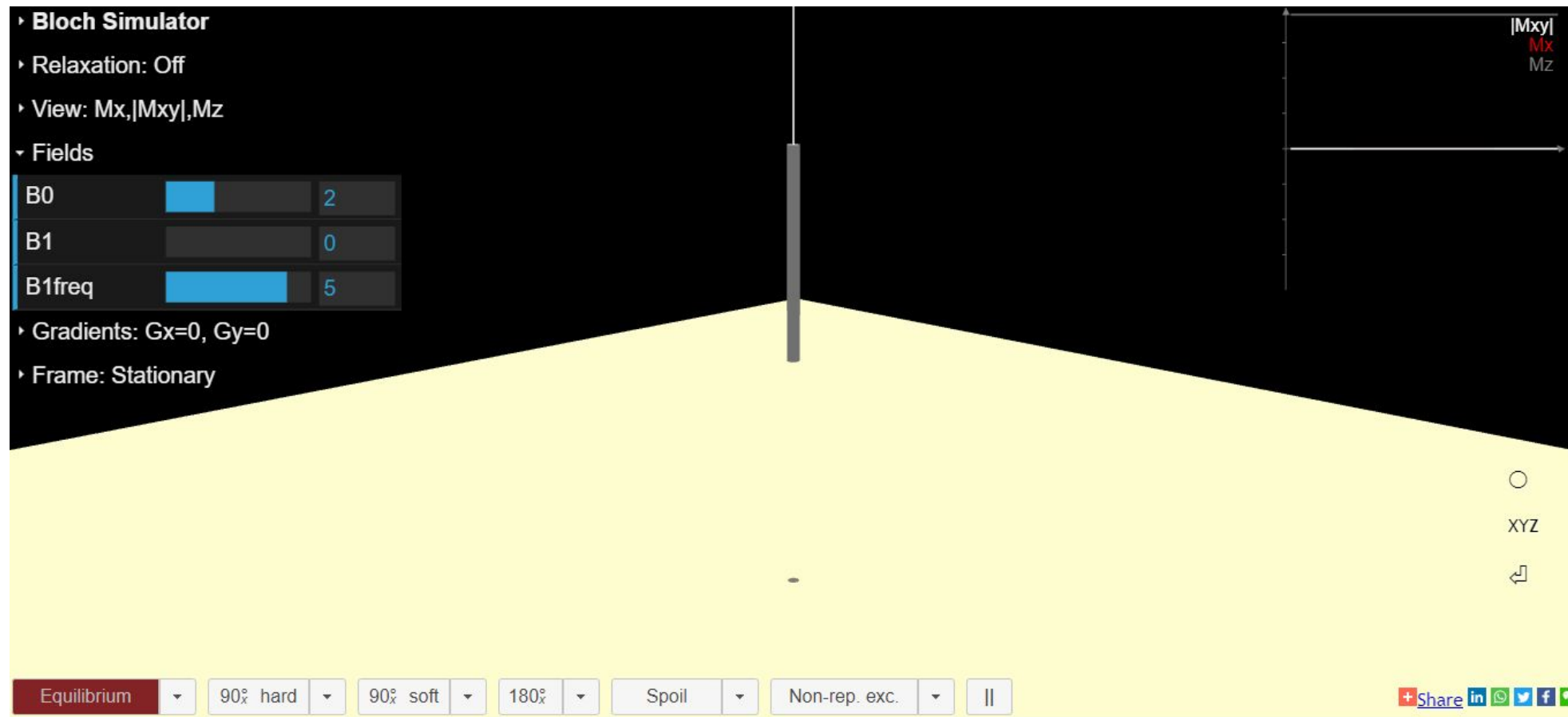
Ana Lucía Soria Cardona

Graciela Alejandra Rincón López

Natalia Verónica Flores Del Río

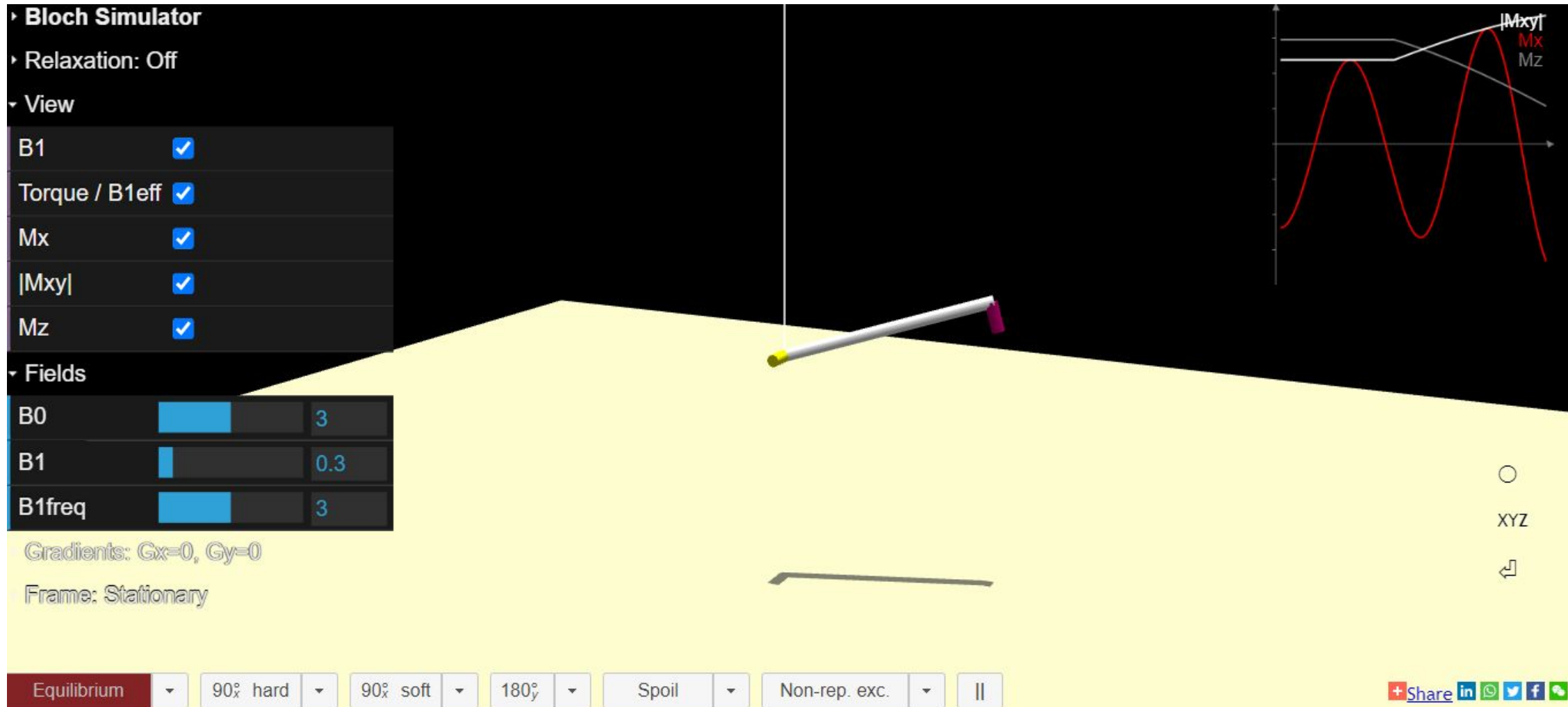
Marcela Enriquez López

step 1



step 2

Selección de las view y se establecieron los rangos de B0, B1 y B1freq



step 3

▸ Bloch Simulator

▸ Relaxation: Off

▸ View: B1,Torque,Mx,|Mxy|,Mz

▾ Fields

B0		3
B1		0.3
B1freq		3

▸ Gradients: $G_x=0$, $G_y=0$

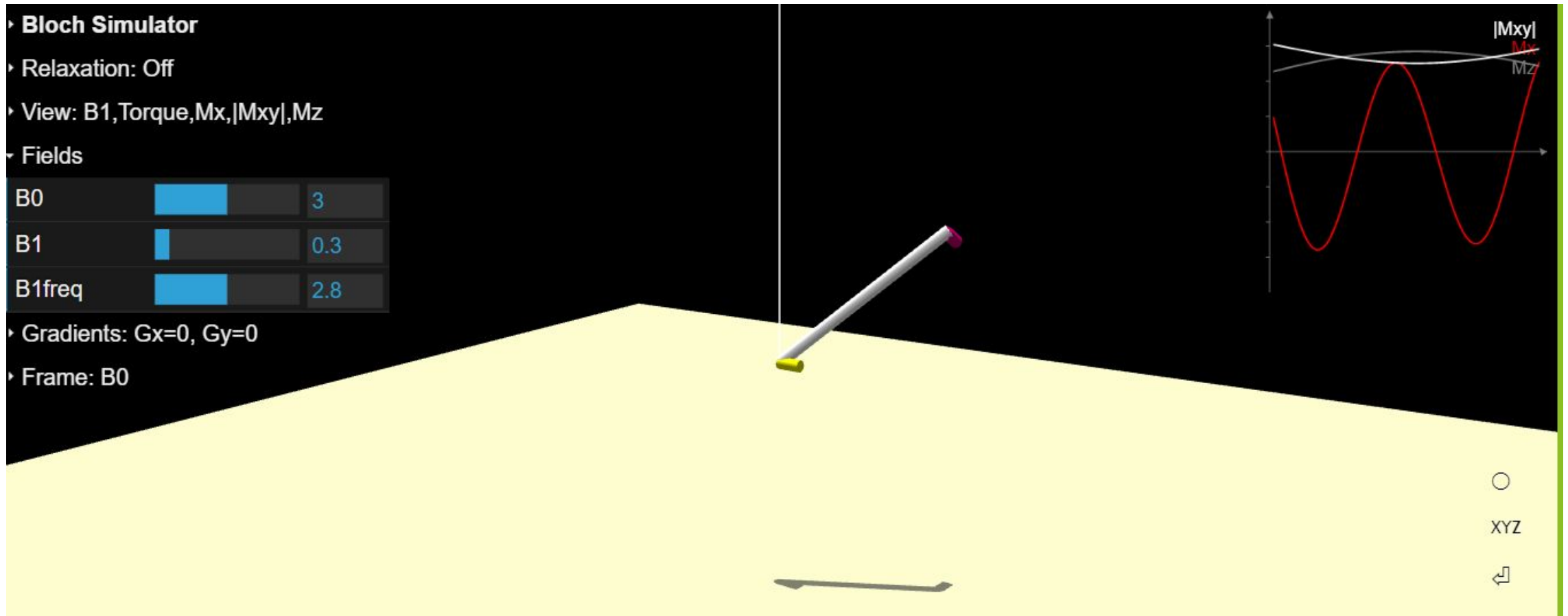
▸ Frame: B0



step 4

Frequency at which the torque only moves at one direction. B1Freq= 2.8

B1Freq= 2.8



Our example

$$BO = 4$$

$$B1 = 0.9$$

$$B1Freq = 4$$

Case

▸ Bloch Simulator

▾ Relaxation

T1 Infinity

T2 Infinity

▸ View: B1,Torque,Mx,|Mxy|,Mz

▾ Fields

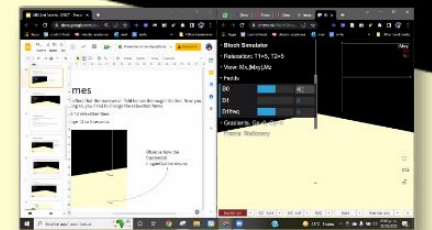
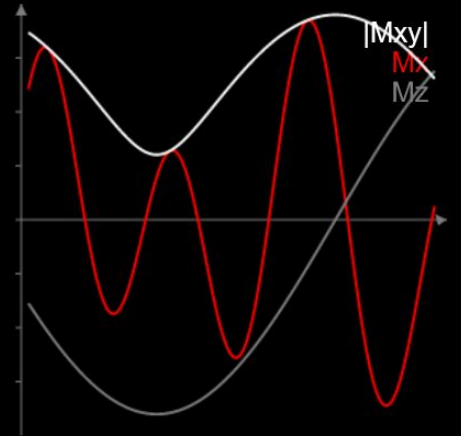
B0 4

B1 0.9

B1freq 4

Gradients: $G_x=0$, $G_y=0$

Frame: B0



Equilibrium

90° hard

90° soft

180°

Spoil

Non-rep. exc.



[Share](#) [in](#) [whatsapp](#) [twitter](#) [facebook](#) [telegram](#)

▸ Bloch Simulator

▾ Relaxation

T1 Infinity

T2 Infinity

▸ View: B1,Torque,Mx,|Mxy|,Mz

▾ Fields

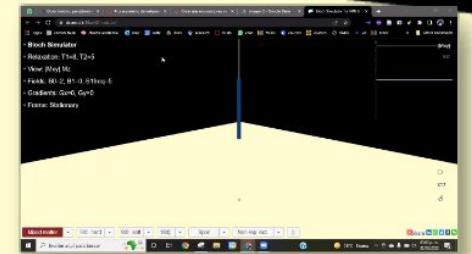
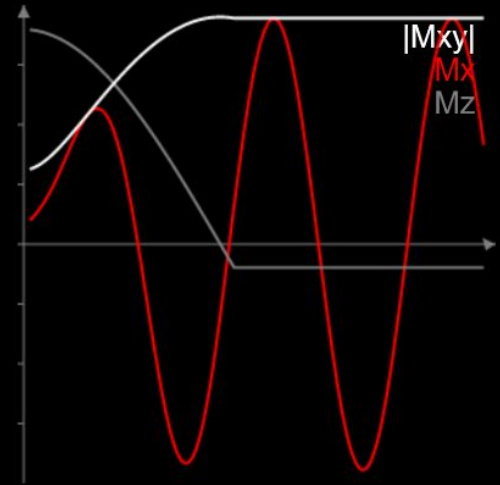
B0 4

B1 0

B1freq 4

▸ Gradients: $G_x=0$, $G_y=0$

▸ Frame: B0



Equilibrium

90° hard

90° soft

180°

Spoil

Non-rep. exc.



▸ Bloch Simulator

▾ Relaxation

T1	<input type="text" value="9"/>
T2	<input type="text" value="9"/>

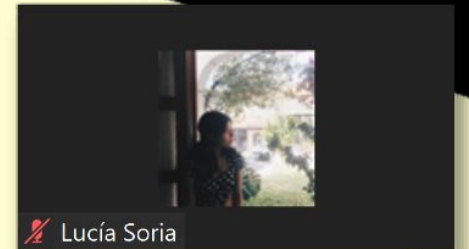
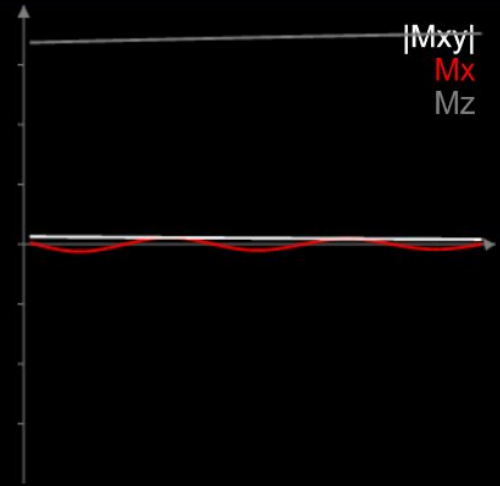
▸ View: B1,Torque,Mx,|Mxy|,Mz

▾ Fields

B0	<input type="text" value="4"/>
B1	<input type="text" value="0"/>
B1freq	<input type="text" value="4"/>

▸ Gradients: $G_x=0$, $G_y=0$

▸ Frame: B0



Lucía Soria

Equilibrium ▾

90°_x hard ▾

90°_x soft ▾

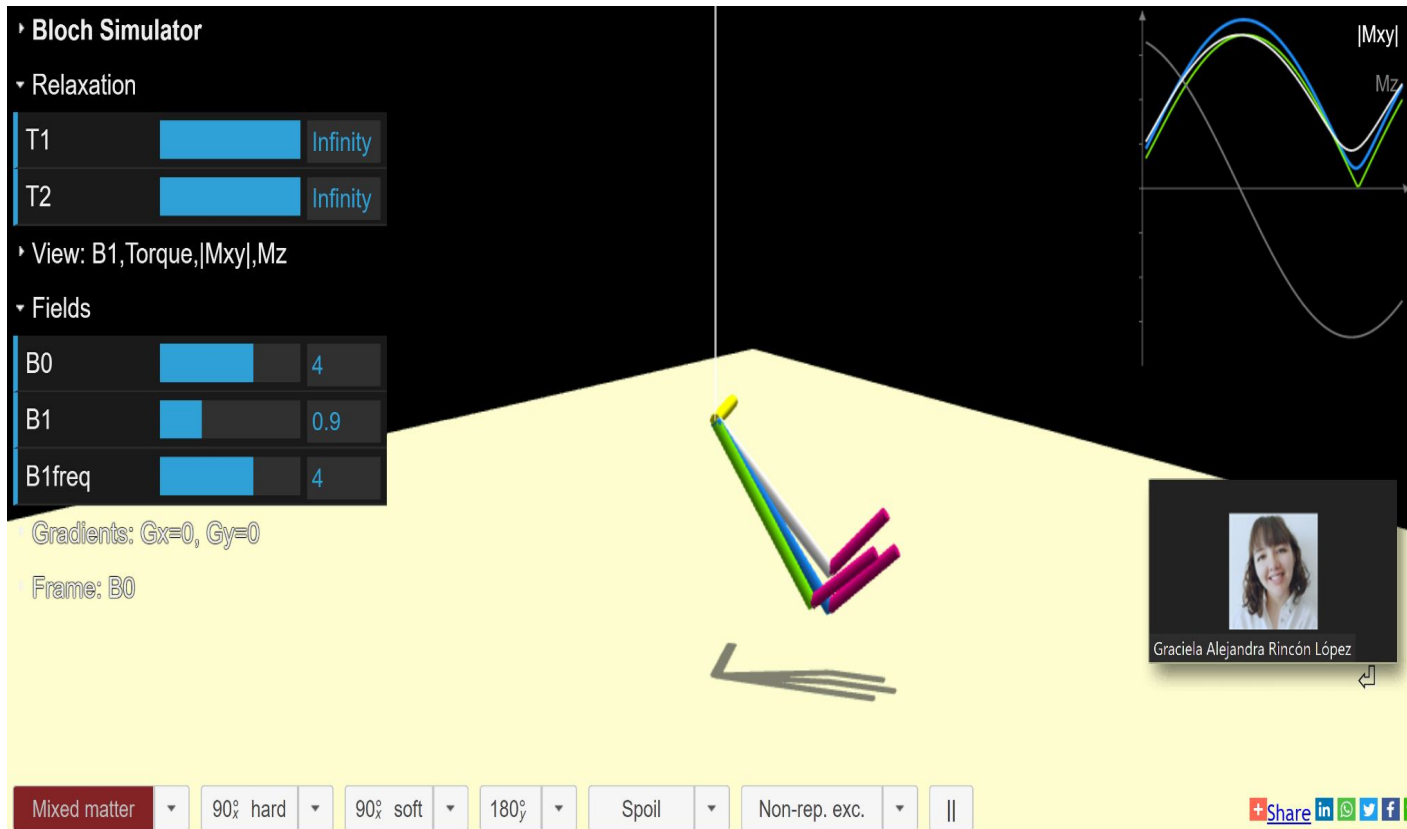
180°_y ▾

Spoil ▾

Non-rep. exc. ▾

||

Mixed matter



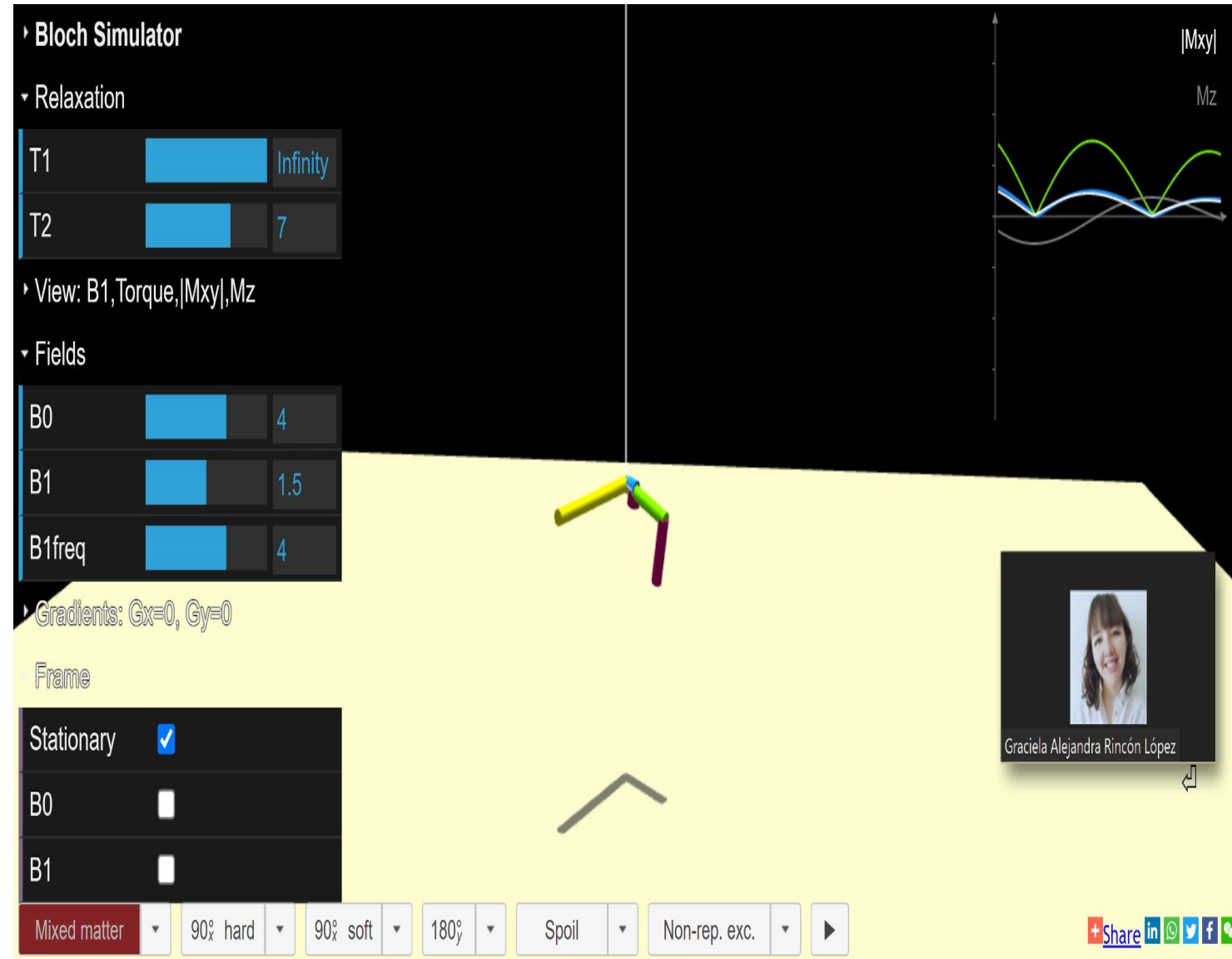
With the B1 frame, all the components are moving in the same direction.

Due to the different properties found in the simulation there are affected in different ways by the ultramagnetic field. This is seen as in the simulation the pieces move towards the same direction, yet they move at a different speed.

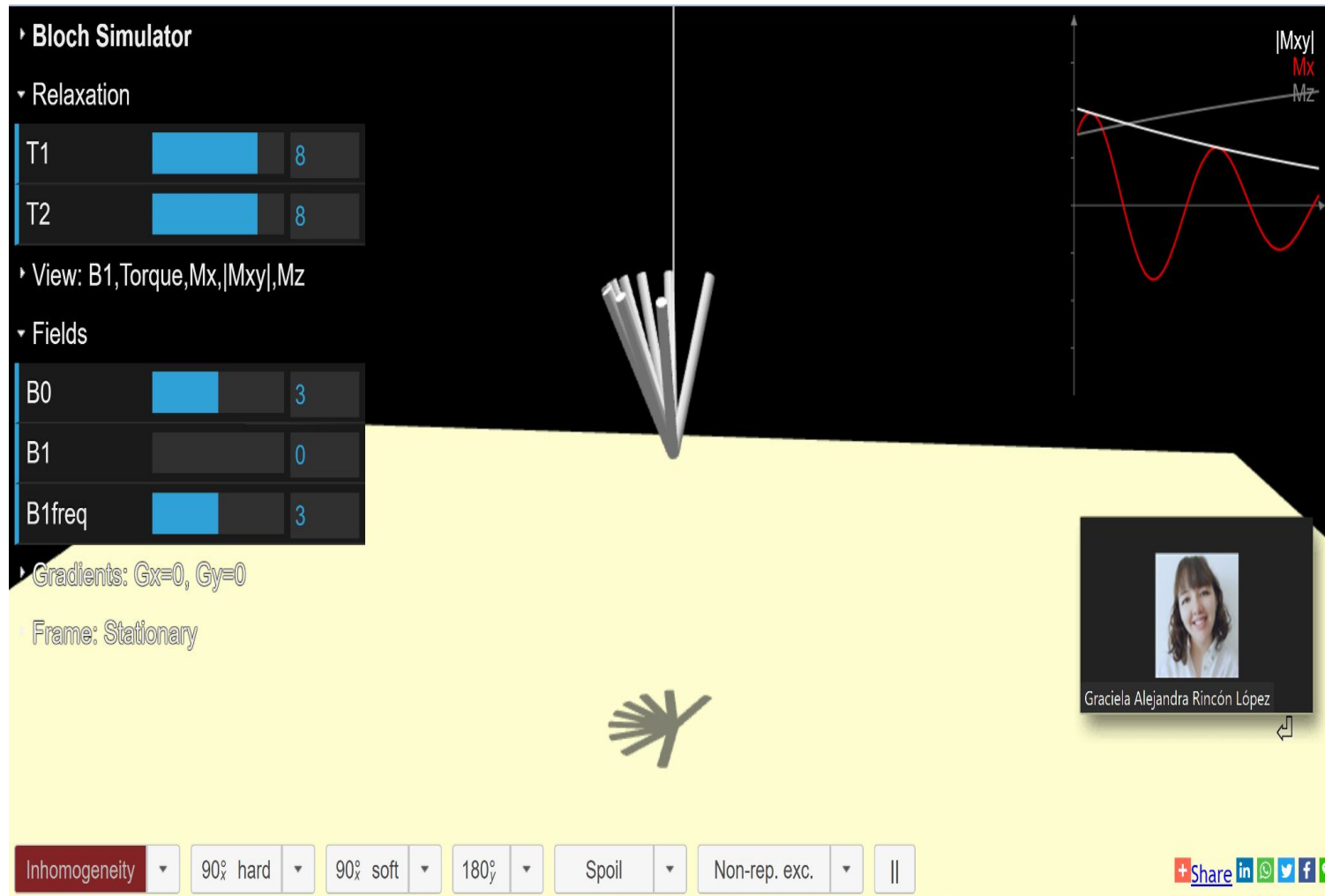
Looking at the different colors of pieces we can observe delays on the rotation of them, it can be seen how the green piece is moving at a faster rate than the blue piece.

Mixed matter

When editing the B1 and the relaxation, a faster decrease was noted by the white and blue bars, while the green one kept a relatively good size and rotation time.



90° hard angle



In the 90° hard angle the magnetizations are dephasing and we can appreciate that the echo is greater than m_x but is not strong enough to be greater than m_z .

180°_y angle

When the magnetizations are returning to the equilibrium state the 180°_y angle is applied and we can observe that the echo is stronger than both m_x and m_z .

