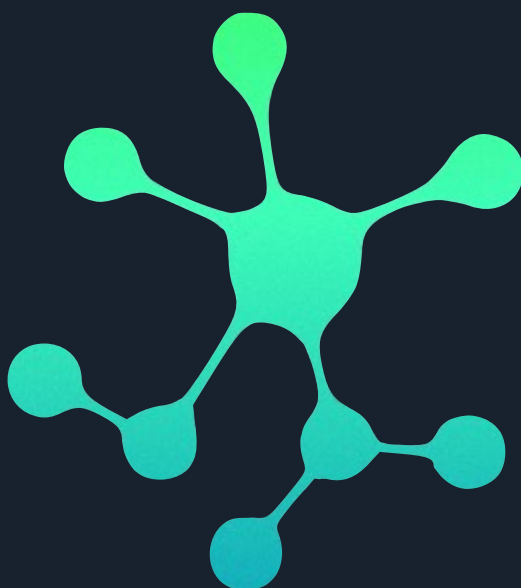
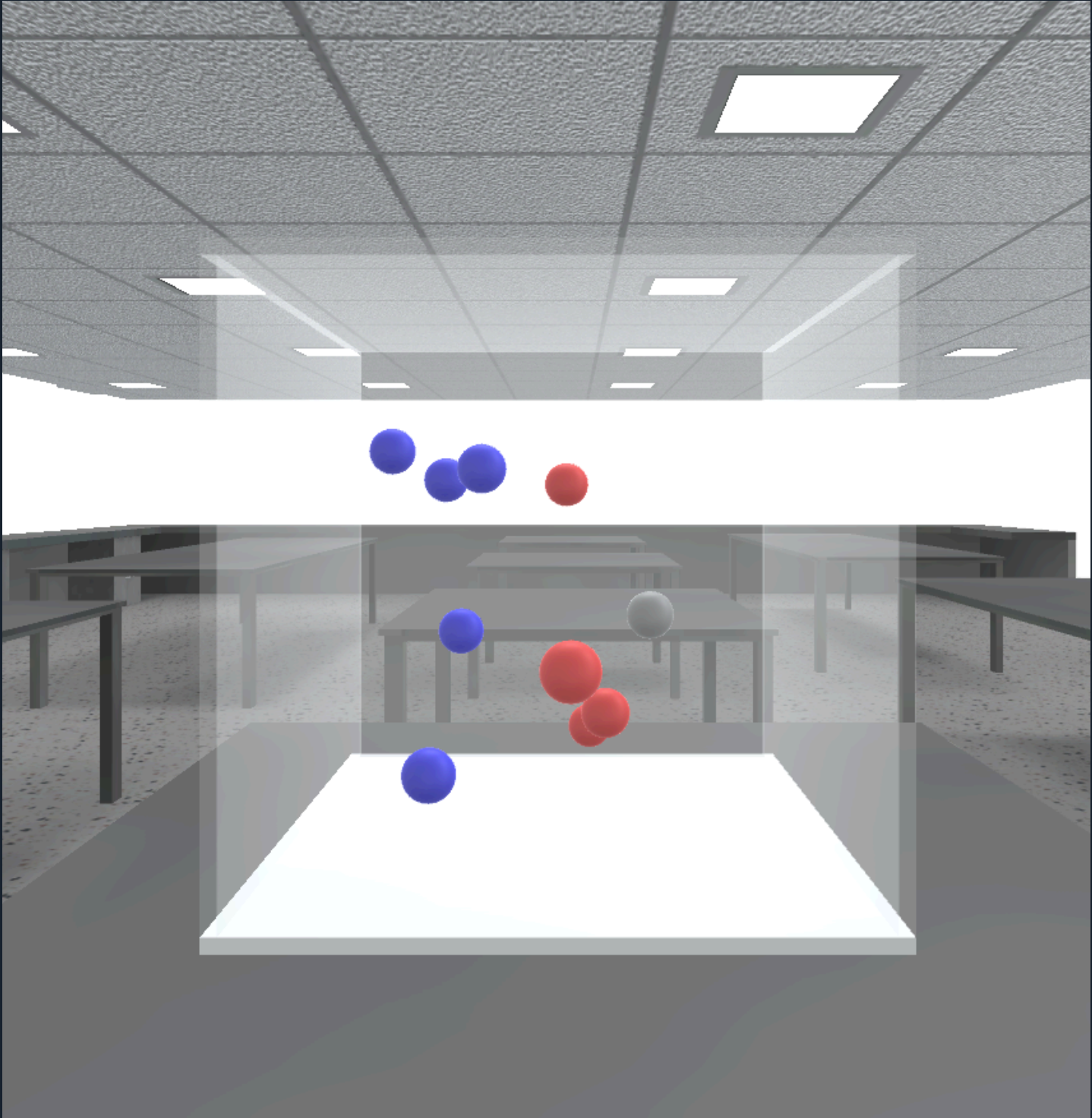


Team 9's Simplified Small-Molecule Dynamics

# PARTICLE SIMULATOR



# USER MANUAL



**T**his document details the instructions you need to use in the Particle Simulator in Unity.

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# Using the Small Molecules Application in Unity

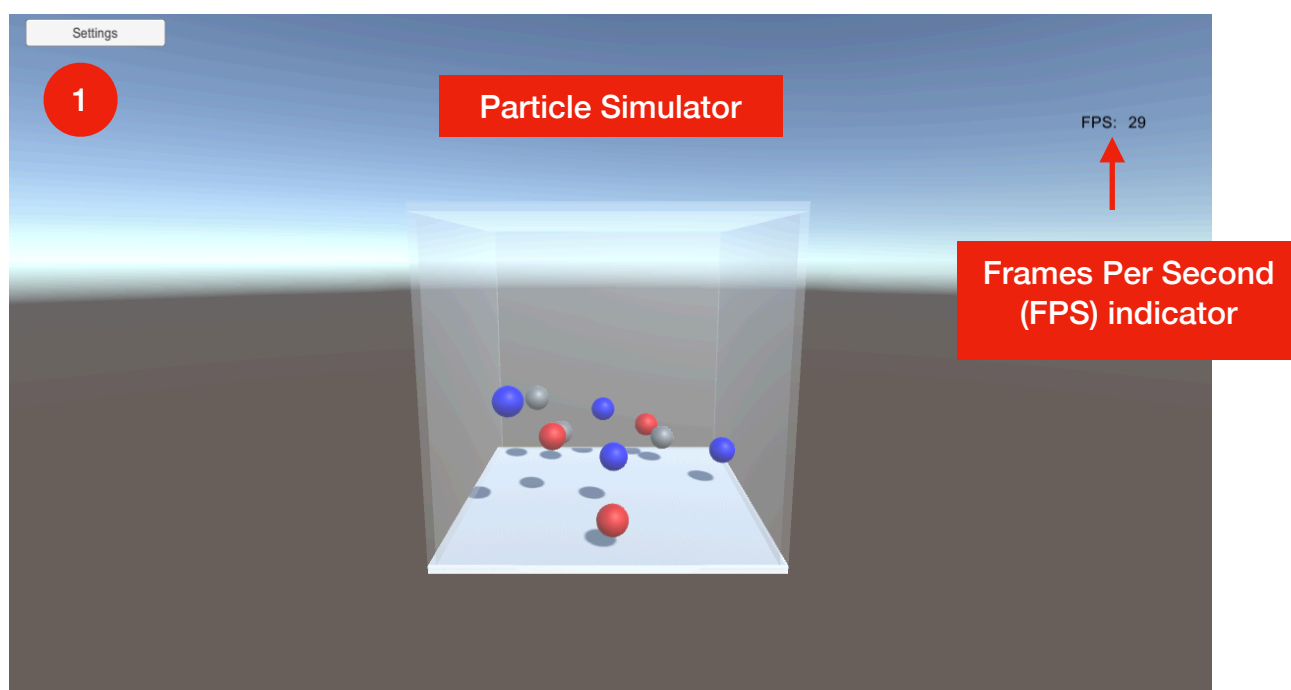


Figure 1: Particle Simulation Load Screen

Once you have clicked on the play icon in Unity, the simulation window will display the above. You will be presented with a 'Settings' (1) button, the current Particle Simulation and a Frames Per Second (FPS) indicator.

To open the 'Settings' window, click on the 'Settings' button in the top left of the simulator window.

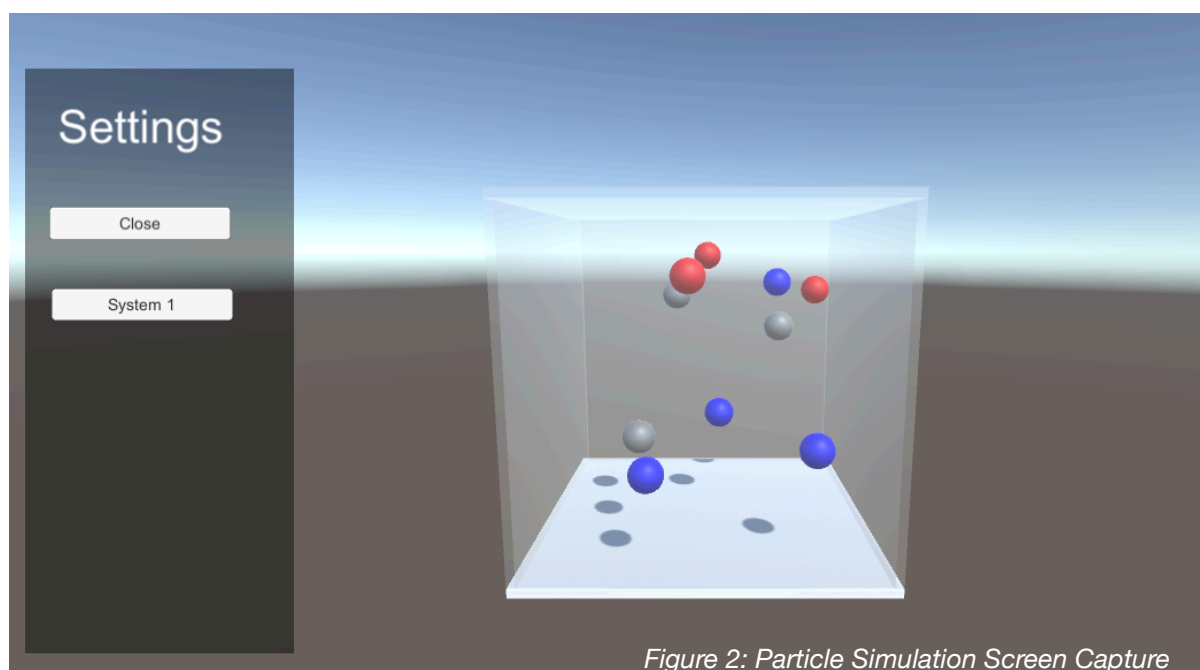
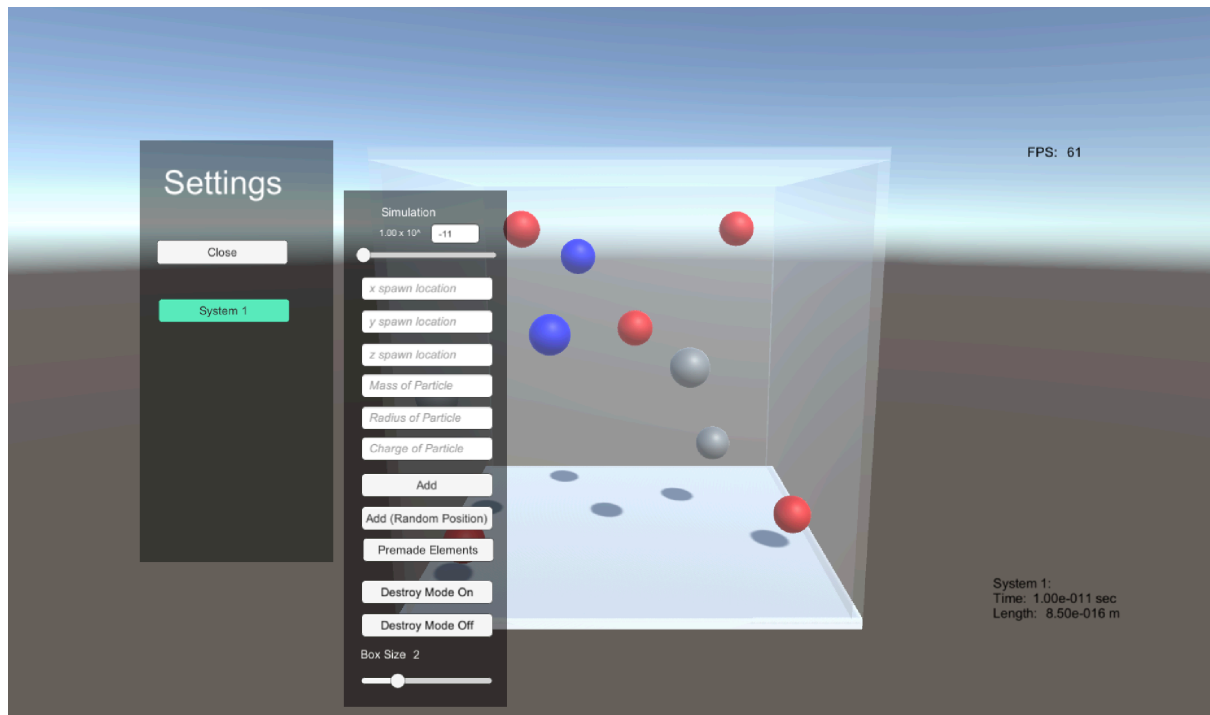


Figure 2: Particle Simulation Screen Capture

# Settings

Once the Settings window is open, the simulation will be paused until the 'Close' button is clicked.



Inside the 'System 1' (2) button the simulation will be updated with the following menu:

## Simulation Settings

The following options will be displayed to experiment further with the simulation.

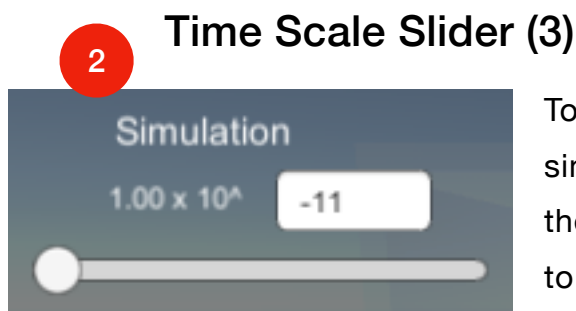
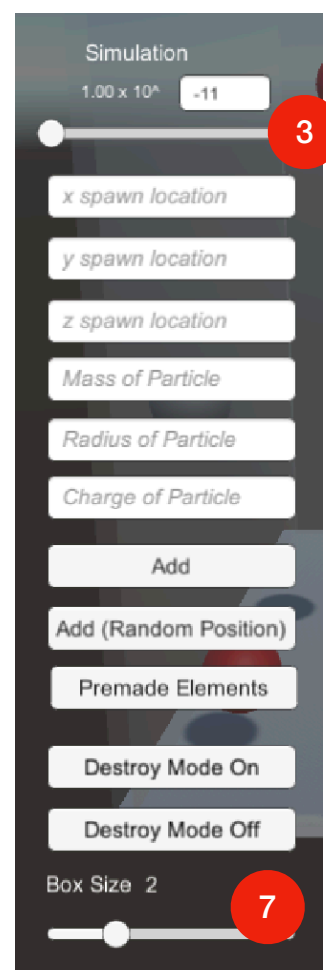


Figure 4: Time Scale Slider

To change the speed of the simulation, click on the circle in the slider and drag to the right to speed up and left to slow it down.

Figure 3: Particle



## Add a particle

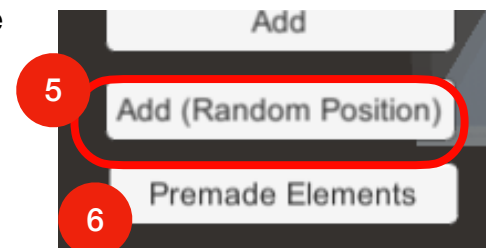
To add a particle into the simulation, you will need to fill out the information that is highlighted in red. If you try to add a particle without filling out the information it will highlight the sections you have missed.

Fields	What to Input
X spawn location	Add a number value for the location on the x axis
Y spawn location	Add a number value for the location on the y axis
Z spawn location	Add a number value for the location on the z axis
Mass of Particle	Numeric value greater than 1 that will change the mass of the particle. The greater the number the heavier the particle.
Radius of Particle	Numeric value greater than 1 that will change the size of the particle. The greater the number the bigger the radius.
Charge of Particle	Positive Charge: A positive number (1) will be RED Negative Charge: A negative number (eg -1) will be BLUE



Once filling out the fields, click on the 'Add' button (4) and it will spawn a particle at your given parameters.

To add a *random particle* with random values, click on the 'Add (Random Position)' button (5).



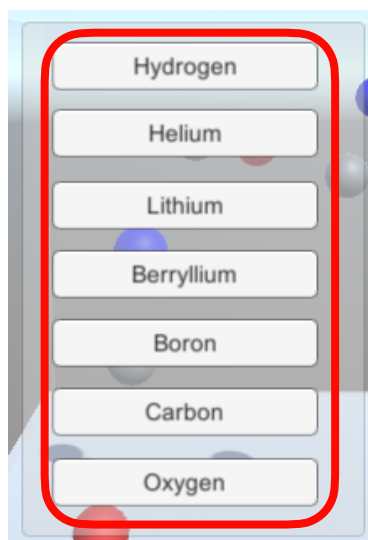


Figure 5: Premade Elements Menu

## Premade Elements

The 'Premade Elements' button (6) will allow you to add pre-defined elements as seen on the left.

Once you have selected an element, the selected element will randomly spawn inside the simulation box.

## Destroy Mode

When clicking on 'Destroy Mode On', you will be able to destroy particles within the simulation.



If you have clicked 'Destroy Mode Off' you will not be able to destroy the particles.

## Box Size Slider (7)



The 'Box Size Slider' will enable you to change the size of the box that the particles are contained in.

To increase the size, slide the circle to the right (Maximum 5) and to decrease, slide the circle to the left.