Experiment 3: Collisions Part 3C– Rotational Coupling Collision

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| --- | --- | --- |
| Name | Partner | Date |
| Mass of Disk | Radius of Disk |
| Calculate the rotational inertia of the disk about an axis thru its center perpendicular to its surface: |
| Mass of Ring | Inner and outer radii of Ring |
| Calculate the rotational inertia of the ring about an axis thru its center perpendicular to its surface: |
| Sketch graph of angular velocity vs time (w vs t) and identify regions BEFORE, DURING, and AFTER the collision. | Initial angular velocity, $ω\_{i}$ |
| Final angular velocity, $ω\_{f}$ |
| Compute the initial and final angular momentum |

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| --- | --- | --- |
| Name | Partner | Date |
| Write a statement discussing whether you observed the angular momentum of this system to be conserved |
| Compute the initial and final kinetic energy of the system |
| Write a statement discussing whether you observed the kinetic energy of this system to be conserved |
| Compute the ratio $K\_{f}/ K\_{i}$ and compare to the theoretical result $I\_{DISK} / (I\_{DISK}+I\_{RING})$ using the formula you derived in the prelab. |
| Attachments:* Annotated graph showing the angular velocity versus time plot of experimental data.
* Annotated graph showing the angular velocity versus time plot from the simulation.
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