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, | |
| Final angular velocity, | |
| 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 and compare to the theoretical result 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. | | |