

| | M | N | O | P | Q | R | S | T | U | V | W | |
|----|--|------------------|-----------------|---|--|-------------------------|-----------------------|---|----------------------------------|-------------------------|-----------------------|--|
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | DATA - Elastic Collision: | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | Flag Width: | | | | Flag Width: | | | | | | | |
| 10 | d_A (cm) | δd_A (cm) | (dd/d)_A | | d_B (cm) | δd_B (cm) | (dd/d)_B | | | | | |
| 11 | 6 | 0.1 | 1.67% | | 6 | 0.1 | 1.67% | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | Flag Times | | | | | | | |
| 14 | Glider masses: | | | | Before Collision: | | | | After Collision: | | | |
| 15 | m_A (g) | dm_A (g) | (dm/m)_A | | t_Ai (s) | dt_Ai (s) | (dt/t)_Ai | | t_Af (s) | dt_Af (s) | (dt/t)_Af | |
| 16 | 400 | 0.05 | 0.01% | | 2.1 | 0.021 | 1.00% | | 6.29 | 6.29% | 1.00% | |
| 17 | | | | | | | | | | | | |
| 18 | m_B (g) | dm_B (g) | (dm/m)_B | | | | | | t_Bf (s) | dt_Bf (s) | (dt/t)_Bf | |
| 19 | 800 | 0.05 | 0.01% | | | | | | 3.16 | 3.16% | 1.00% | |
| 20 | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | CALCULATIONS - Elastic Collision: | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | Flag Width: | | | | Flag Width: | | | | | | | |
| 25 | d_A (m) | δd_A (m) | (dd/d)_A | | d_B (m) | δd_B (m) | (dd/d)_B | | | | | |
| 26 | 0.06 | 0.001 | 1.67% | | 0.06 | 0.001 | 0.016666667 | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | Momentum uncertainties based on $p = m * d / t$ | | | | | | | |
| 29 | Glider masses: | | | | MOMENTUM | | | | | | | |
| 30 | m_A (kg) | dm_A (kg) | (dm/m)_A | | Before Collision: | | | | After Collision: | | | |
| 31 | 0.4 | 0.00005 | 0.01% | | p_Ai (kgm/s) | dp_Ai (kgm/s) | (dp/p)_Ai | | p_Af (kgm/s) | dp_Af (kgm/s) | (dp/p)_Af | |
| 32 | | | | | 0.011428571 | 0.000222136 | 1.94% | | -0.00381558 | 7.41631E-05 | -1.94% | |
| 33 | m_B (kg) | dm_B (kg) | (dm/m)_B | | | | | | p_Bf (kgm/s) | dp_Bf (kgm/s) | (dp/p)_Bf | |
| 34 | 0.8 | 0.00005 | 0.01% | | | | | | 0.015189873 | 0.00029524 | 1.94% | |
| 35 | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | |
| 37 | | | | | Total p Before Collision: | | | | Total p After Collision: | | | |
| 38 | | | | | p_tot_i (kgm/s) | dp_tot_i (kgm/s) | (dp/p)_tot_i | | p_tot_f (kgm/s) | dp_tot_f (kgm/s) | (dp/p)_tot_f | |
| 39 | | | | | 0.011428571 | 0.000222136 | 1.94% | | 0.011374293 | 0.000304412 | 2.68% | |
| 40 | | | | | | | | | | | | |
| 41 | | | | | Kinetic energy uncertainties based on $KE = 0.5 * m * d^2 / t^2$ | | | | | | | |
| 42 | | | | | KINETIC ENERGY | | | | | | | |
| 43 | | | | | Before Collision: | | | | After Collision: | | | |
| 44 | | | | | KE_Ai (J) | dKE_Ai (J) | (dKE/KE)_Ai | | KE_Af (J) | dKE_Af (J) | (dKE/KE)_Af | |
| 45 | | | | | 0.000163265 | 6.34665E-06 | 3.89% | | 1.81983E-05 | 3.53719E-07 | 1.94% | |
| 46 | | | | | | | | | | | | |
| 47 | | | | | KE_Bi (J) | dKE_Bi (J) | (dKE/KE)_Bi | | KE_Bf (J) | dKE_Bf (J) | (dKE/KE)_Bf | |
| 48 | | | | | 0 | 0 | 0.00% | | 0.000144208 | 5.60579E-06 | 3.89% | |
| 49 | | | | | | | | | | | | |
| 50 | | | | | Total KE Before Collision: | | | | Total KE After Collision: | | | |
| 51 | | | | | KE_tot_i (J) | dKE_tot_i (J) | (dKE/KE)_tot_i | | KE_tot_f (J) | dKE_tot_f (J) | (dKE/KE)_tot_f | |
| 52 | | | | | 0.000163265 | 6.34665E-06 | 3.89% | | 0.000162406 | 5.61694E-06 | 3.46% | |