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First Question, 05.06.2026. Regarding the proof of the uncompensated momentum in a new way (examined following several generalized questions).

The generation of an uncompensated momentum (UCM) can be accomplished in various ways. Its essence can be most easily traced and understood in the quantum process of inverse Compton scattering. Accordingly, UCM can also be obtained when a device of two bodies (DTB) is used. Below, the possibility of obtaining UCM via DTB is examined theoretically, with all processes occurring in a complete repeating cycle. Thus, in this theoretical analysis, with each subsequent cycle of the closed system, we obtain a further acceleration relative to the coordinate system (CS) (which also answers a number of generalized questions).

In Fig. 1, we have a closed mechanical system consisting of two bodies, H1 and H2, which is in weightlessness in outer space, where the geometric centers of the bodies coincide with the center of mass (CM), as shown. In this case, the blue frame (body H1) surrounds body H2 and defines the mechanical system. Electromagnetic units EM1 and EM2 are fixed onto H1.

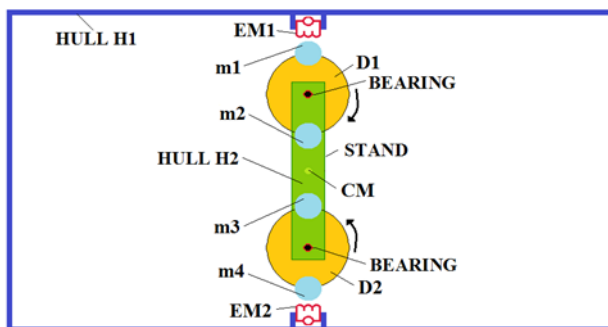


Fig. 1. (color) View along the z-axis. The geometric centers of H1 and H2 coincide with the CM of the mechanical system. Electromagnetic units EM1 and EM2 are fixed onto H1. Disks D1 and D2 are mounted on the support structure, symmetrically with respect to the geometric center, via shafts and bearings. Massive spheres m1 and m2 are fixed symmetrically on D1, while m3 and m4 are on D2. (For convenience, spheres m2 and m3 are also visible in the drawing, even though they are located beneath the support structure.)

What is new in this case (compared to the analysis in the first chapter) is that body H2 consists of a support structure on which disks D1 and D2 are mounted, and two massive spheres are fixed symmetrically with respect to the axis on each disk, see Fig. 1. Each of the spheres m1, m2, m3, and m4 has a mass of 10 kg, while in this case the mass of the disks themselves is minimal and is neglected for convenience. *(Let us assume that, analogously to the analysis in the first chapter, the massive spheres under consideration (m1, m2, m3, and m4) are permanent magnets oriented in an appropriate manner. Consequently, electromagnet units EM1 and EM2 can interact (for instance, repel each other) with the permanent magnets under consideration.)* The two disks can rotate freely relative to the support structure via the bearings and shafts. Accordingly, when we apply the third law via EM1 and EM2, D1 and D2 receive an identical

angular velocity, with D1 rotating clockwise and D2 rotating counterclockwise. The two bodies have equal masses of 60 kg each, where body H2 consists of a 20 kg support structure and four 10 kg spheres. In this way (analogously to the analysis in the first chapter), we have symmetrical masses and forces that do not transmit any torque to the bodies.

All movements of the components of the mechanical system are considered relative to the CS Oxyz. For convenience of analysis, let us initially assume that the mechanical system is at rest relative to the CS.

However, when we apply Newton's third law by simultaneously supplying a brief electrical impulse to electromagnets EM1 and EM2 (analogously to the analysis in the first chapter), bodies H1 and H2 will acquire equal translational velocities of approximately 2 m/s, with H1 moving to the left in the diagram, and H2 consequently moving in the opposite direction, while D1 and D2 will rotate in opposite directions (when considering a setup with operational bearings), see Fig. 2.

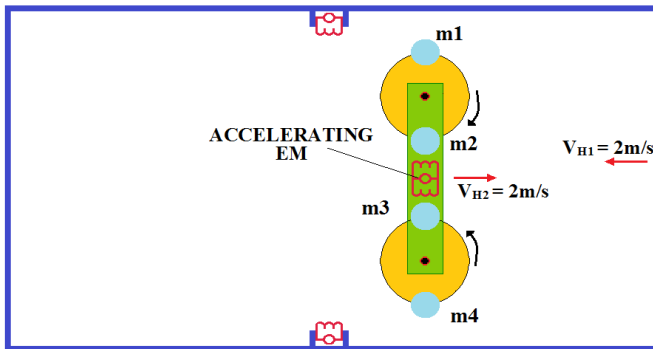


Fig. 2 (color) View along the z-axis. A snapshot taken after EM1 and EM2 have accelerated H1 and H2 in opposite directions and they have already traveled some distance. At this stage, the accelerating EM is activated, changing the angular velocity of D1 and D2 to 79.57 revolutions per second. Accordingly, when m1 is at the 12 o'clock position and m4 is at the 6 o'clock position, we can release m1 and m4 simultaneously.

The essence of obtaining UCM results from the possibility that we can alter the angular velocity - ω of both disks after the third law has already been applied via EM1 and EM2. This change in angular velocity does not affect the motion (velocity) of H2, as the accelerating electromagnets (accelerating EM) are fixed to the support structure and operate synchronously, see Fig. 2. Since D1 and D2 are fully balanced and complete symmetry of masses and forces is maintained for both disks, H2 does not receive any angular rotation. It should be noted that in this case, bodies H1 and H2 do not exchange energy (momenta); consequently, body H2 can be considered as an "independent closed system" in which the law of conservation of the motion of the CM holds.

It should be noted that we can increase or decrease the angular velocity of D1 and D2 depending on the requirement of a specific analysis (in this case, we can assume that the initial angular velocity of D1 and D2 is zero). For this scenario, we assume that after the modification of the angular velocity (via the accelerating EM), D1 and D2 are already rotating at 79.577 revolutions per second. At a distance of 0.2 m from the disk axis to the center of each of the four massive spheres, we have a corresponding tangential (linear) velocity of 100 m/s.

Thus, if we release spheres m_1 and m_4 simultaneously when m_1 is at 12 o'clock and m_4 is at 6 o'clock (see Fig. 2), they will maintain their direction and velocity and will consequently add this velocity to the translational velocity of H2. Therefore, we have a resultant velocity of m_1 and m_4 of 102 m/s, moving against the right "wall" of H1, which has a velocity of 2 m/s but in the opposite direction to m_1 and m_4 . Accordingly, during a 100% inelastic collision between H1 with a mass of 60 kg and m_1, m_4 with a total mass of 20 kg, we obtain a resultant velocity (of H1, m_1, m_4) of 24 m/s to the right in the diagram, see Fig. 3.

It should be noted that when we release m_1 and m_4 simultaneously, D1 and D2 will no longer be balanced. Consequently, due to centripetal forces, spheres m_2, m_3 with a mass of 20 kg and the support structure with a mass of 20 kg will begin complex dynamic motions like a mechanical pendulum relative to the CM of the support structure. To avoid the analysis of these resulting complex motions of the support structure and m_2, m_3 , we can halt the rotational motions of D1 and D2 using the stopping EMs shown, which are fixed to the support structure, see Fig. 3. We assume that the halting of the rotational motions of D1 and D2 is carried out within the short period following the moment when spheres m_1 and m_4 are released.

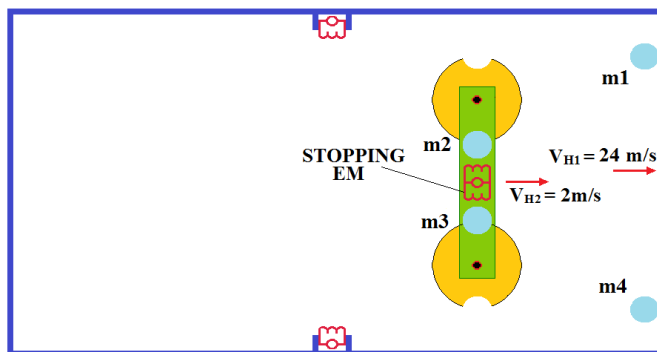


Fig. 3 (color) View along the z-axis. A snapshot after m_1 and m_4 have reached the right wall of H1 and the process of a completely inelastic collision between m_1, m_4 and H1 has taken place. Now, H1 has a mass of 80 kg and a velocity of 24 m/s to the right relative to the CS. Simultaneously with the release of m_1 and m_4 , the stopping EM can already be activated to halt the rotation of D1 and D2.

For this theoretical analysis, we assume that the halting of the rotational motions of D1 and D2 has concluded, such that sphere m_2 is now at 6 o'clock plus 2 seconds, and sphere m_3 is at 12 o'clock minus 2 seconds. (That is, the halting of the rotational motions of D1 and D2 occurs within 2 seconds.) In this way, for the simplicity of this theoretical analysis, we omit the evaluation of the complex dynamic motions of the support structure and m_2 and m_3 . As a final result (see Fig. 3), relative to the CS, we have a translational motion of H1 at 24 m/s to the right in the diagram, as well as a translational motion of H2 at 2 m/s to the right in the diagram, while the angular velocity of D1 and D2 (with m_2 and m_3 fixed on them) is now zero.

Therefore, since body H1 moves faster than body H2, after a certain time the left wall of body H1 will catch up with the support structure along with m_2 and m_3 , as shown in Fig. 4. Thus, after a 100% inelastic collision between H1 along with m_1, m_4 (with a mass of 80 kg) and the support structure along with m_2 and m_3 (with a mass of 40 kg), we now have a resultant velocity of 16.666 m/s relative to the CS, to the right in the diagram, as shown in Fig. 4. In this case, a single UCM has been obtained for the inertial system DTB shown in Fig. 4.

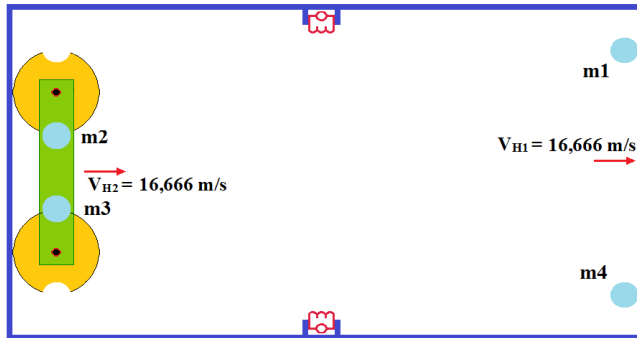


Fig. 4. (color) View along the z-axis. Due to the motion of body H1, the left wall of H1 catches up with the support structure along with m2 and m3. Thus, after a 100% inelastic collision between H1, m1, m4 and the support structure, m2, m3, we now have the resultant velocity of 16.666 m/s, i.e., for the entire mechanical system (referred to briefly as DTB), a single UCM has been obtained.

However, in order to repeat the discussed processes again so that the device executes repeating cycles, the locations of all components must be positioned as they were considered at the beginning of the analysis (see Fig. 1). In order to obtain a layout identical to Fig. 1, the support structure along with m2 and m3, as well as m1 and m4, must be accelerated from the two opposite "walls" of H1 by means of appropriate automation (where m1 and m4 are "re-secured" onto the support structure and newly "form" body H2). This is done so that they arrive simultaneously at the position where the geometric centers of H1 and the newly formed H2 coincide (see Fig. 1 and the CM shown). During acceleration from the two opposite "walls" of H1, since the masses of m1 and m4, as well as those of m2 and m3 are equal, H1 will not change its velocity; i.e., in this case energy is expended to accelerate m1, m4 as well as m2, m3, but body H1 does not alter its velocity. Consequently, in this scenario (Fig. 4), only the support structure with a mass of 20 kg, which is accelerated from the left wall of H1, will alter (reduce) the velocity of H1. This is because in this instance, the third law of mechanics is applied between body H1 with a mass of 60 kg and the support structure with a mass of 20 kg. Accordingly, if we accelerate the support structure by 2 m/s, body H1 will decrease its velocity by 0.666 m/s, leaving a new resultant velocity for body H1 of 16 m/s relative to the CS. Therefore, for the entire mechanical system (referred to for short as DTB), at the end of the analyzed processes, we have UCM and a translational velocity of 16 m/s relative to the CS. Furthermore, all components of the DTB, at a specific point in time, are arranged as they were at the beginning of the analysis (as in Fig. 1). Consequently, we can initiate a new subsequent cycle.

(In order not to complicate the analysis, we show only the chronology and the final values (without the formulas of the resultant velocities under consideration), assuming accordingly that anyone interested in the case under consideration can independently determine the specific formulas and regularities used in the analysis. This is because basic regularities and formulas are used in this case, as also discussed in the first chapter. Furthermore, analogously to the analysis in the first chapter, we assume that by means of suitable automation and an algorithm, we synchronously control the processes and chronology for the activation of EM1, EM2, the release of m1 and m4, etc.)