ADVANCED PHYSICS CLUB

MARCH 2, 2025

Useful resources

The updates, homework assignments, and useful links for APC can be found on SchoolNova's web page:
`https://schoolnova.org/nova/classinfo?class_id=adv_phy_club&sem_id=ay2024`
The practical information about the club and contacts can be found on the same web page.

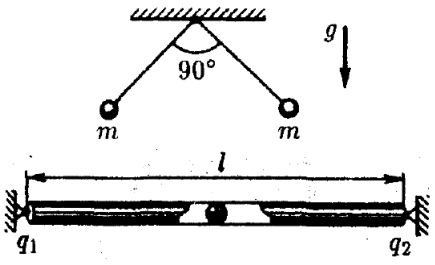
Today's meeting

We finished the assigned problems on Pascals principle and Archimedes law. The next topic is Coulomb's law.

Homework

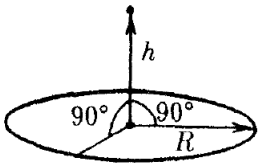
1. Assume that somebody managed to completely separate the positive and negative charges in 1 cm^3 of water and these charges were put 100 km apart. What would be the force of attraction between these charges?

2. Two beads have the same mass m and the same unknown charge. They are hung on threads of length l which are attached to the ceiling at the same point and make 90° at equilibrium. Find the charge of the beads.



3. Two positive charges q_1 and q_2 are located at the ends of a horizontal tube of length l. Find the equilibrium position of a bead with positive charge q inside the tube. Is this equilibrium stable? Would the equilibrium be stable for a negatively charged bead?

4. What is the electric field at the center of a uniformly charged thin ring of radius R? What is the electric field on the axis of the ring at distance h from its center? The charge of the ring is Q.



For the next meeting

IMPORTANT: The next club's meeting is at **2:30pm**, **in person**, on Sunday, **March 9**.