



**Chesapeake Section of the
American Association of Physics Teachers
Fall 2021 Virtual Meeting**

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Type: **Talk**

Modified Atwood Machine

Saturday, October 23, 2021 1:00 PM (15 minutes)

A standard textbook problem and lab experiment involves a cart moving along a horizontal track and connected by a string to a hanging weight around a pulley at the corner between the track and vertical drop.

What happens if the pulley is raised vertically, so that the string connects the pulley to the cart at an angle relative to the track? Then one can no longer find an analytic solution because the tension and accelerations are no longer constant, but one can still write down the equations and solve them numerically.

The theory has no way to know the track ends at the vertical drop. So consider what happens if the track overhangs beyond the edge of the table (and the pulley is slightly twisted so the hanging block doesn't run into the track).

Can you predict what the interesting motion of the cart and hanging weight will be?

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