

UOFSC, DEPARTMENT OF PHYSICS & ASTRONOMY.

Graduate student problem competition

OCT 21–30, 2022

All graduate students are eligible to participate.

To submit your solution, e-mail it to bazaliy@mailbox.sc.edu

Jumping ball

Elastic ball of mass m is thrown from a point on incline with velocity \vec{v} pointing at an angle β to the horizon (see figure). The angle of incline is α , and $\alpha \leq \beta \leq 90^\circ$. The ball makes several jumps up the incline, but eventually turns to move downwards. Every collision with the incline is completely elastic. Find the range of angles β for which the ball makes only one upward jump.

