

Baron von Münchhausen and the cat: Swimming in curved space

Cats fall on their feet, but Baron von Münchhausen could not have pulled himself out of the swamp by pulling on his hair. Why can cats rotate without angular momentum while the Baron can not translate without momentum? As we shall see, Newton's law that fixes the center of mass in the absence of external forces, does not hold in a curved space. It is therefore possible for the Baron to swim in such a space. This allows deformable bodies to move on slippery surfaces.