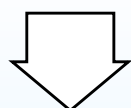
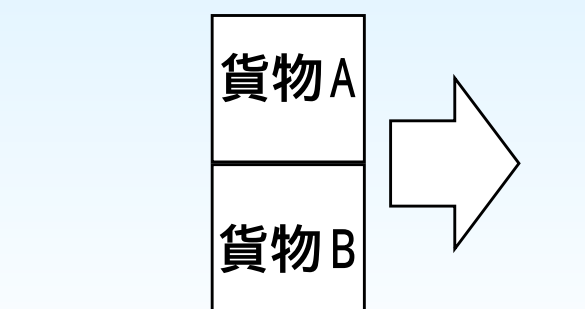


貨物の自律性

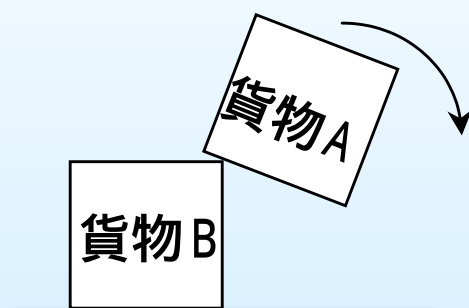
- ◆ 動的落下
- ◆ 静的落下
- ◆ 接触移動
- ◆ 接触回転



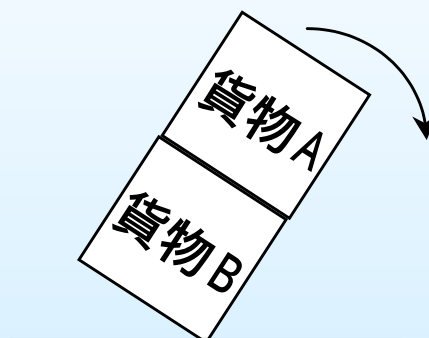
動的落下



急停止、急旋回



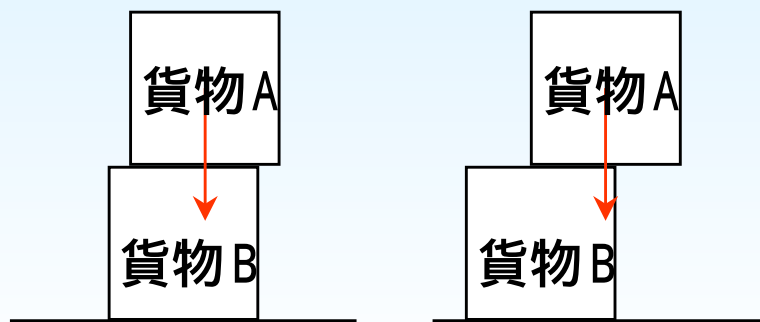
落下する



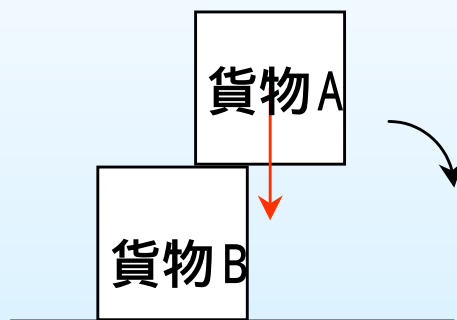
転倒する



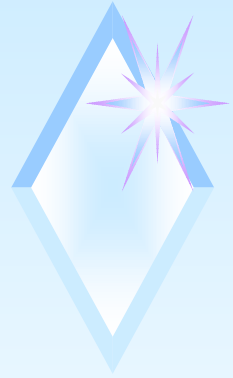
静的落下



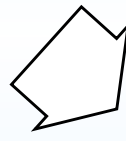
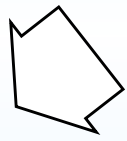
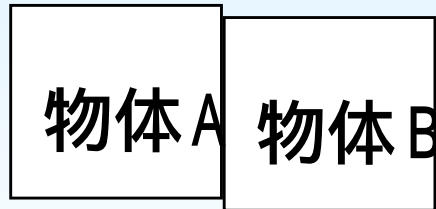
落下しない。



落下する。

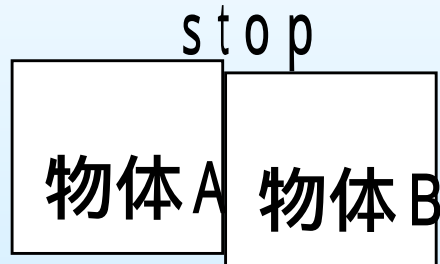
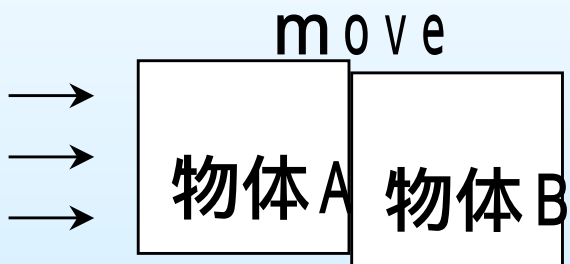


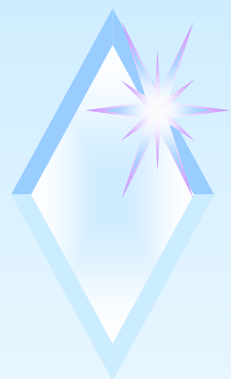
接触移動



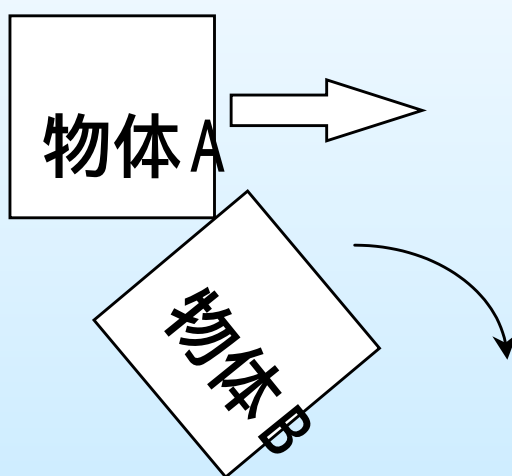
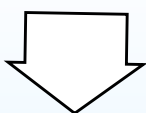
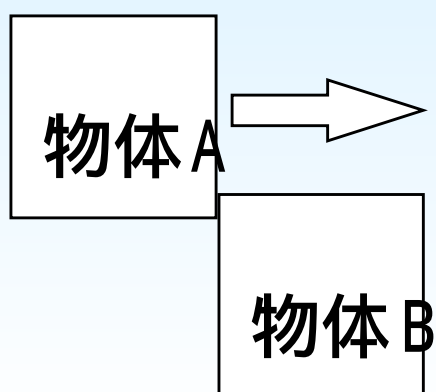
エネルギー > 摩擦力

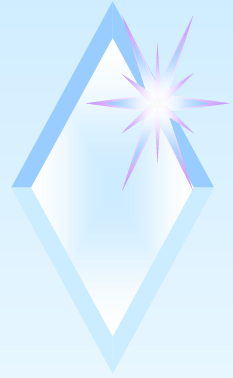
エネルギー < 摩擦力



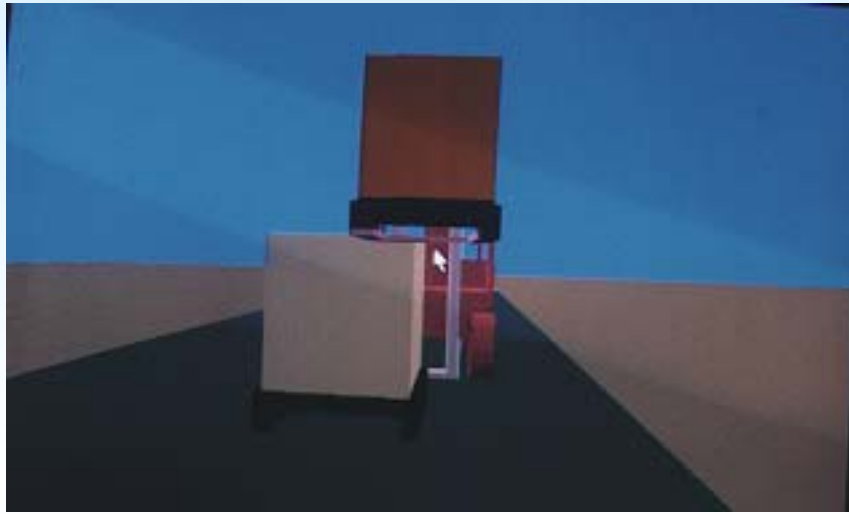


接触回転

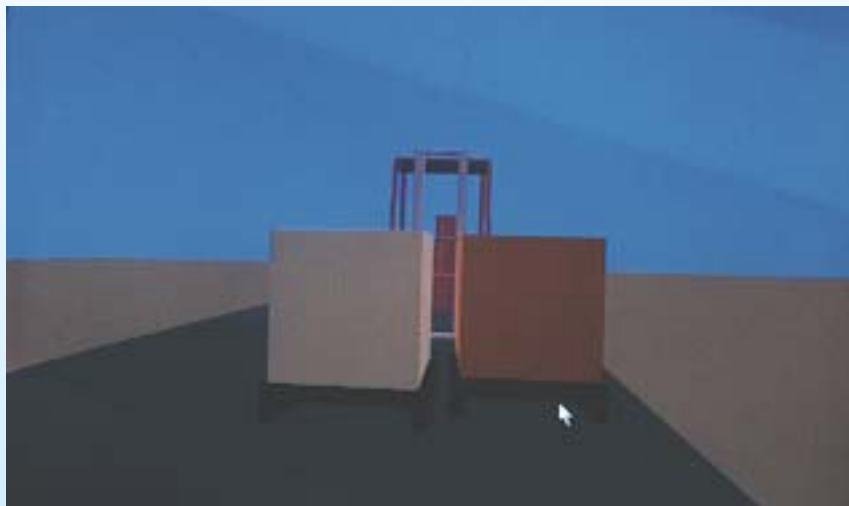




仮想施設内の貨物の落下



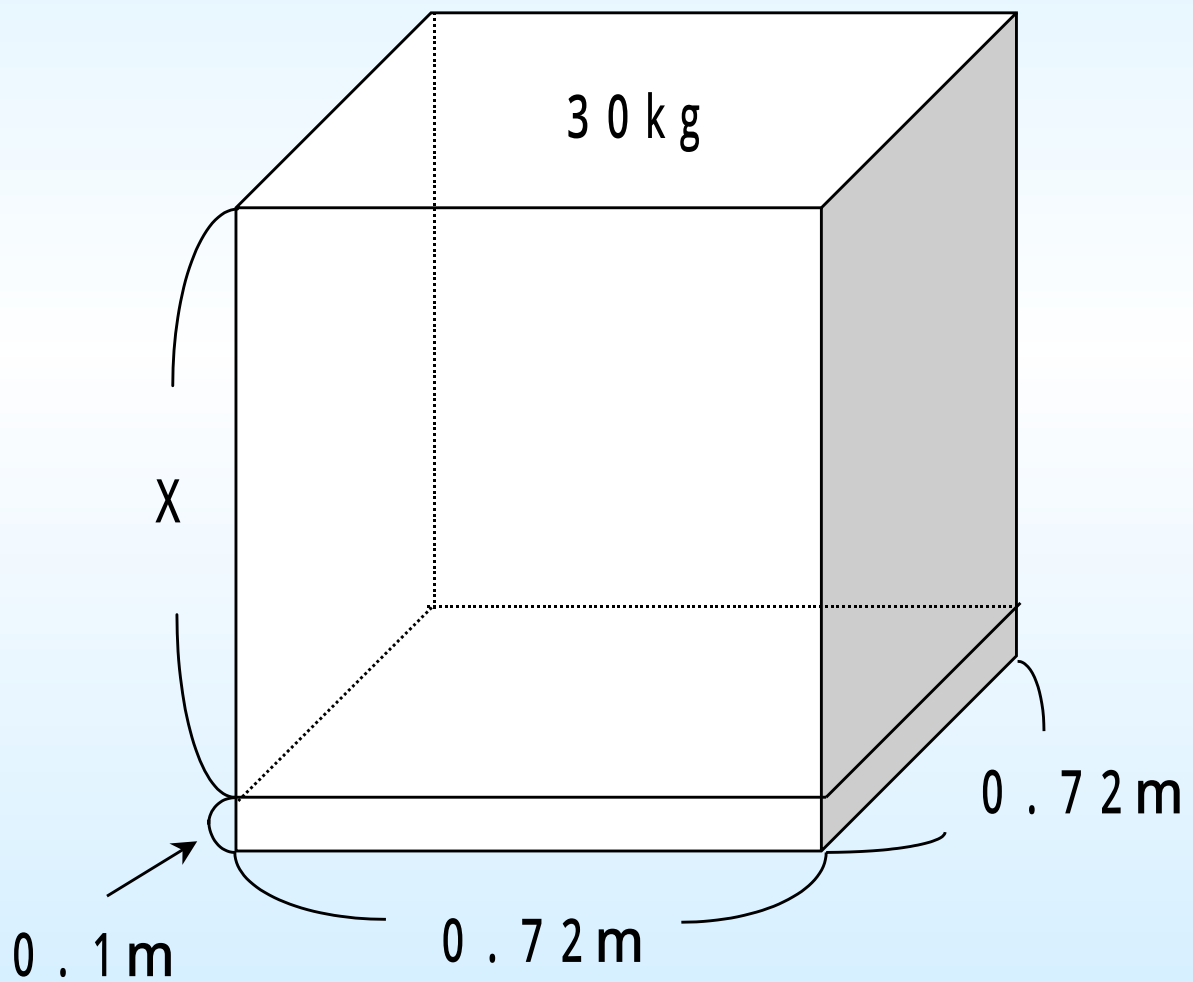
貨物落下前

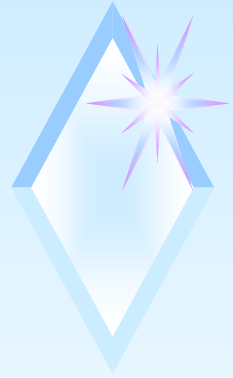


貨物落下後

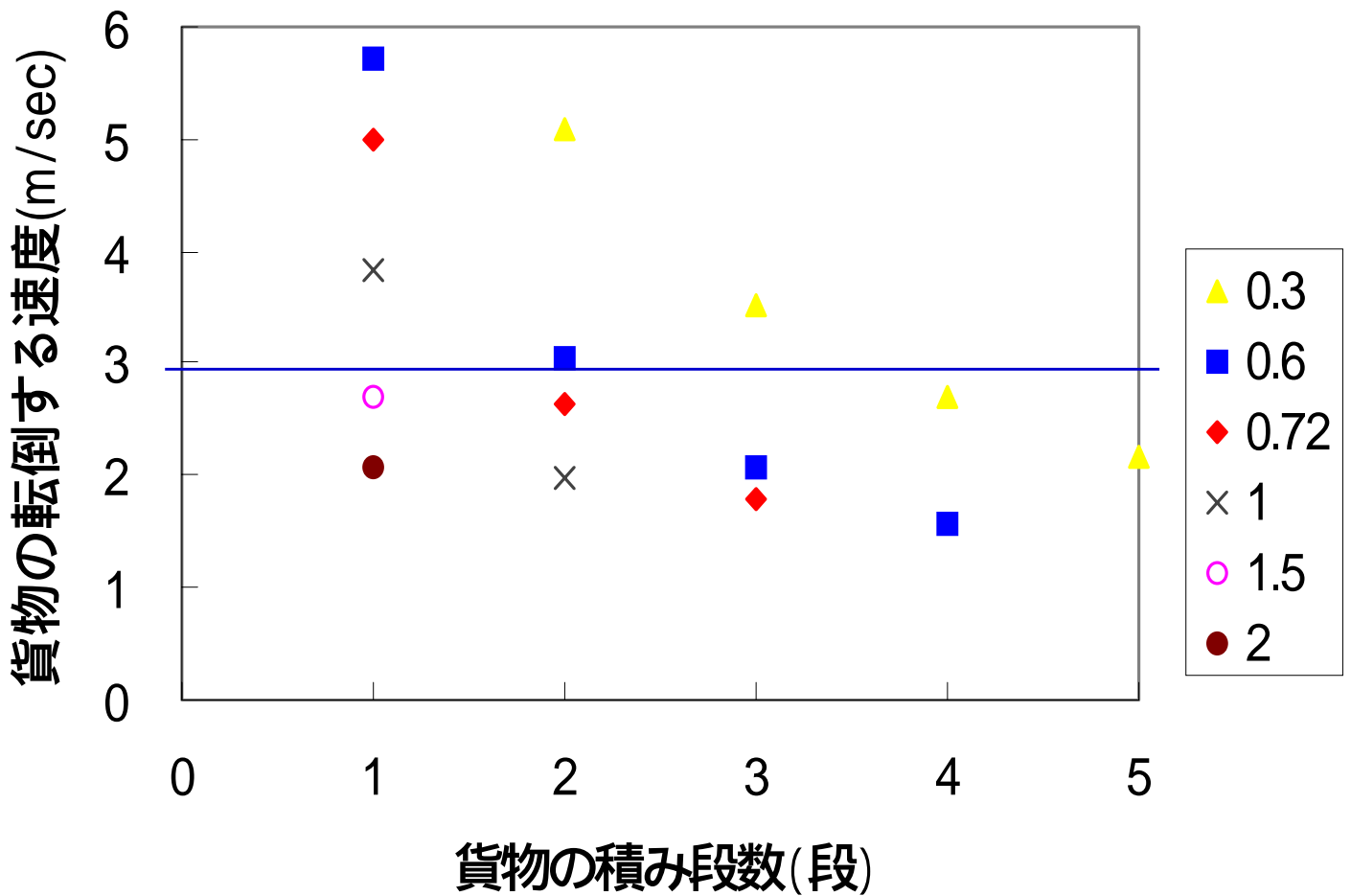


実験に使用する貨物

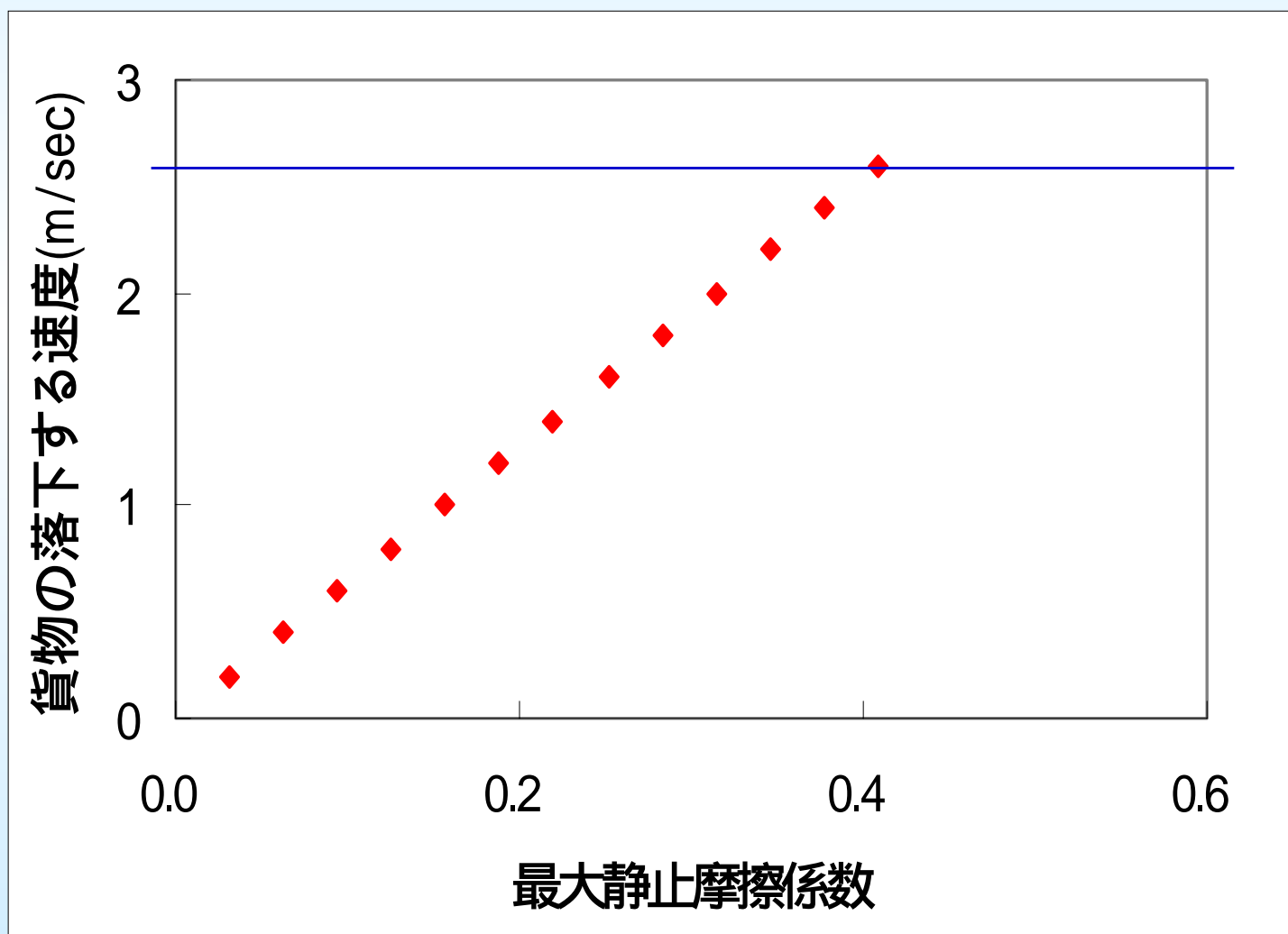


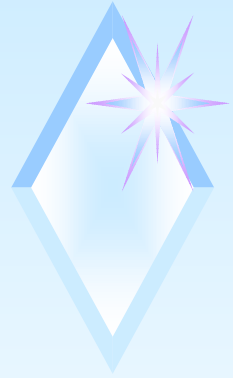


積み段数と速度



摩擦係数と速度





結論

- ◆ 仮想フォークリフトの妥当性
- ◆ 運搬作業の安全性
- ◆ 今後の課題