KU LEUVEN

Cams: Session 1

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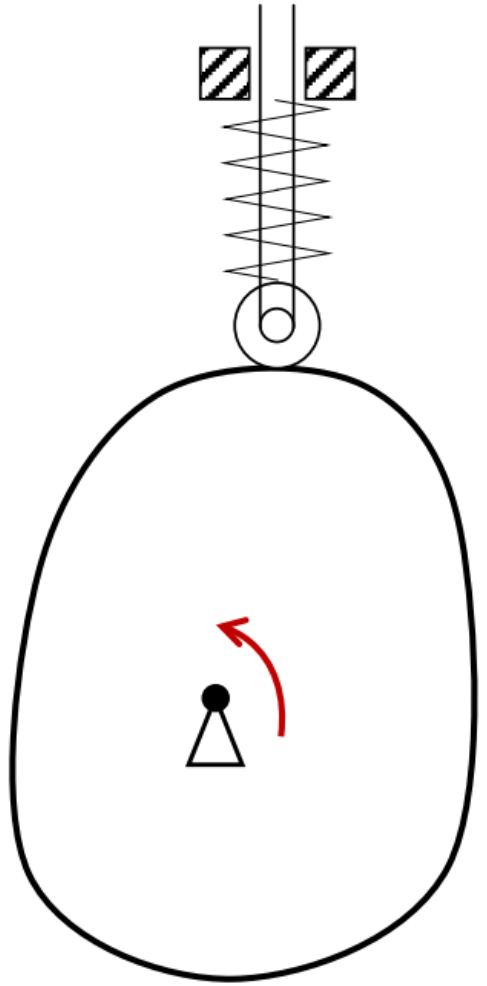
Motion and Vibration: Part Motion

Introduction

- Type of cam mechanism
  - Linear translating follower
  - $S = f(\theta)$
    - with *S:* displacement follower
    - and θ: cam angle

- You will do both a synthesis and an analysis

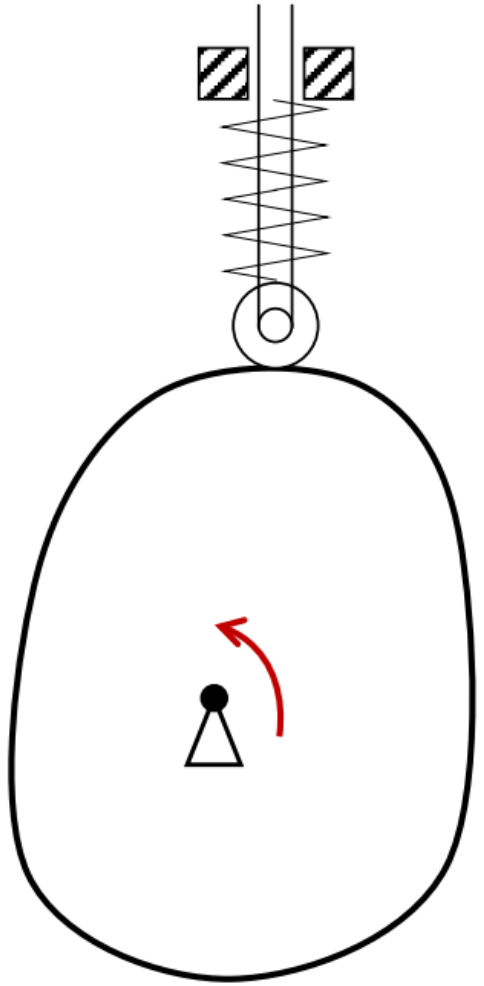


Assignment

Four parts:

1. Define motion law (“*hefwet*”) (Chapter 7)
2. Synthesis of cam- and follower geometry (Chapter 8)
3. Dynamical analysis with rigid follower (Chapter 8)
   - design spring to keep contact
   - design flywheel
4. Dynamical analysis with flexible follower (Chapter 9)
   - link with Vibrations (“*Trillingen*”) course

Full assignment: on Toledo!



Numerical data assignment

- in the exercise session, each **group** gets assigned a number when filling in sheet of paper

- Your numerical data can be found in the file *num_data.html* on Toledo
  - contains desired displacements follower
  - contains functional forces on follower

Matcam + manual

- Matlab function *matcam.m* offers support for:
  - Composing motion law (“*hefwet*”)
  - Determining geometry of cam + follower
  - Calculate contact forces
- Rest of the assignment, you will need to implement yourself
- Manual: check on Toledo!

Practicalities

- Deadlines
  - linkages: TBA (announced on Toledo)

    report preferably in English, but not mandatory + has no influence on the grading
  - cams: TBA (to be confirmed on Toledo)
- Question hours
  - linkages: TBA (announced on Toledo)
  - cams: TBA (to be confirmed on Toledo)
- Discussion forum for questions on linkages and cams outside exercise sessions
  - Asking in English may get you a faster response time!