

# An application for the dimensioning of an Acoustic Metamaterial



Modeling: ★★★★★  
Mathematics: ★★★★★  
Programming: ★★★★★☆

## Trade-off in aviation

- High stiffness-to-mass ratio of light-weight structures in aviation increases structure-borne noise
- Adding damping material to reduce noise increases the mass

## Solution

- Using 3D-printing technology to create material that combines low weight with beneficial acoustical behaviour
- Acoustic Metamaterial using mass-spring systems

## Task

Create an application that:

- Dimensions an array of mass-spring systems to influence the vibration of structures used in aviation
- Attaches the arrays to a Finite Element model in ANSYS and shows the improved vibrational behavior

## Supervisors

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