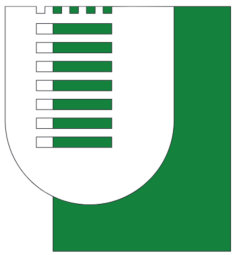
# The Adjoint Method in Scientific Machine Learning

## Theory and applications

Andre Freitas
andre.marreiros.freitas@email.com

Department of Physics
Complex Fluids & Complex Flows Group

January 16th, 2024



TOR VERGATA
UNIVERSITY OF ROME

# Roadmap

# Roadmap

# Frame Title

## Frame Subtitle

Frame contents

- Item 1
- Item 2
  - Subitem 2.1
  - Subitem 2.2

This is **bold text for normal text**.

# Frame Title

## Frame Subtitle

### Block

This is **bold text for blocks**.

### Alert Block

This is **bold text for alert blocks**.

### Example

This is **bold text for example blocks**.

This is **bold text for unnamed blocks**.

# Frame Title

## Frame Subtitle

### Numbered equation

$$\begin{cases} \dot{x} = f(x, u) \\ y = h(x, u) \end{cases} \tag{1}$$

### Unnumbered equation

$$\begin{cases} \dot{x} = Ax + Bu \\ y = Cx \end{cases}$$

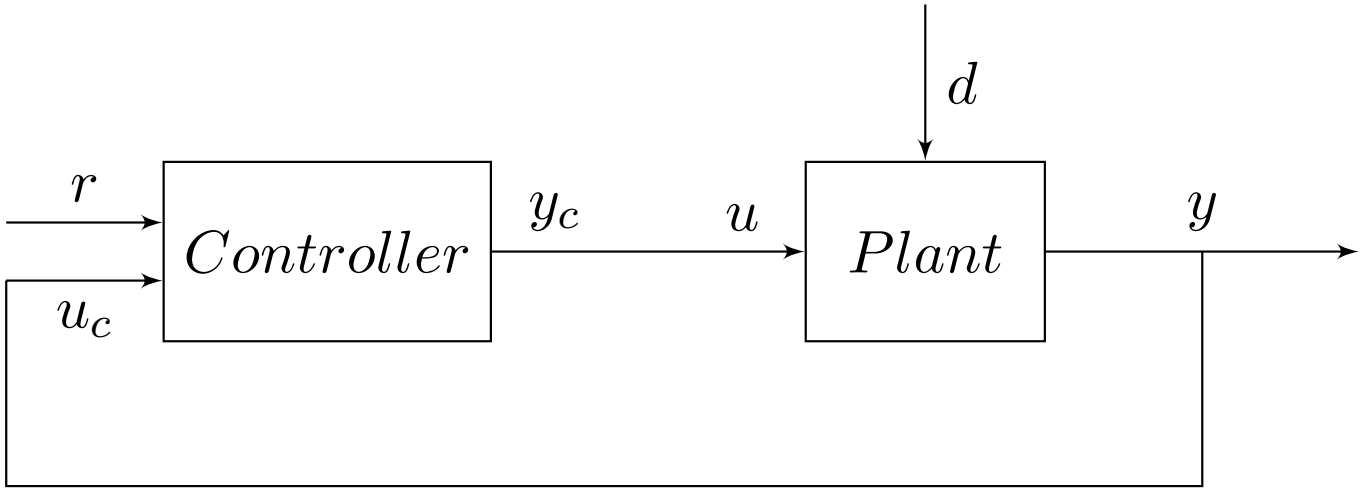



Figure 1: Feedback control system

# Roadmap

# Frame Title

## Frame Subtitle

Frame contents

- Item 1
- Item 2
  - Subitem 2.1
  - Subitem 2.2

This is **bold text for normal text**.

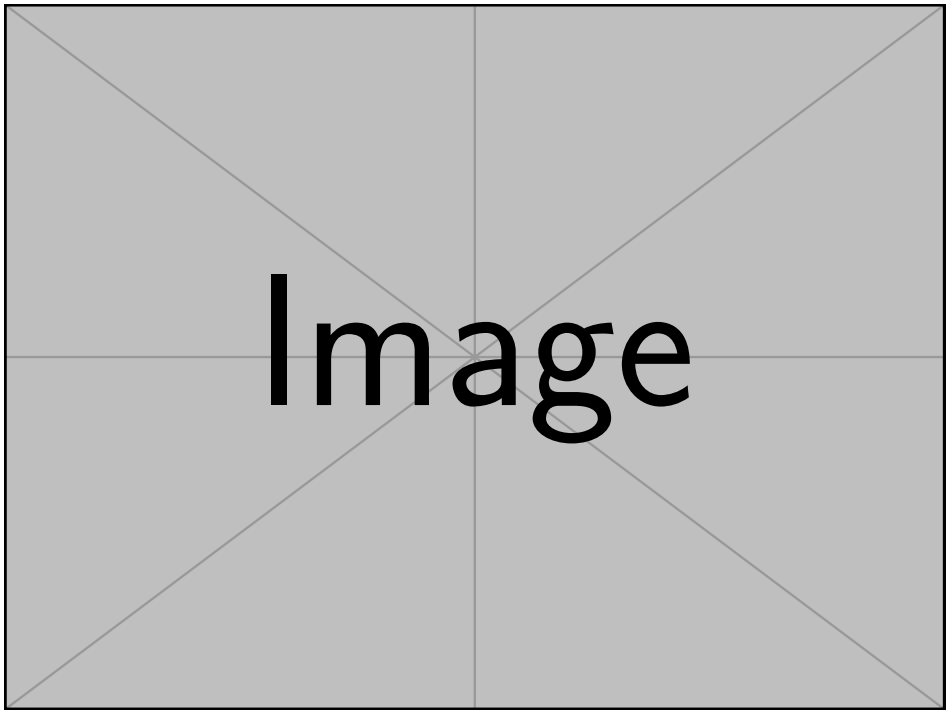



Figure 2: Example Figure A

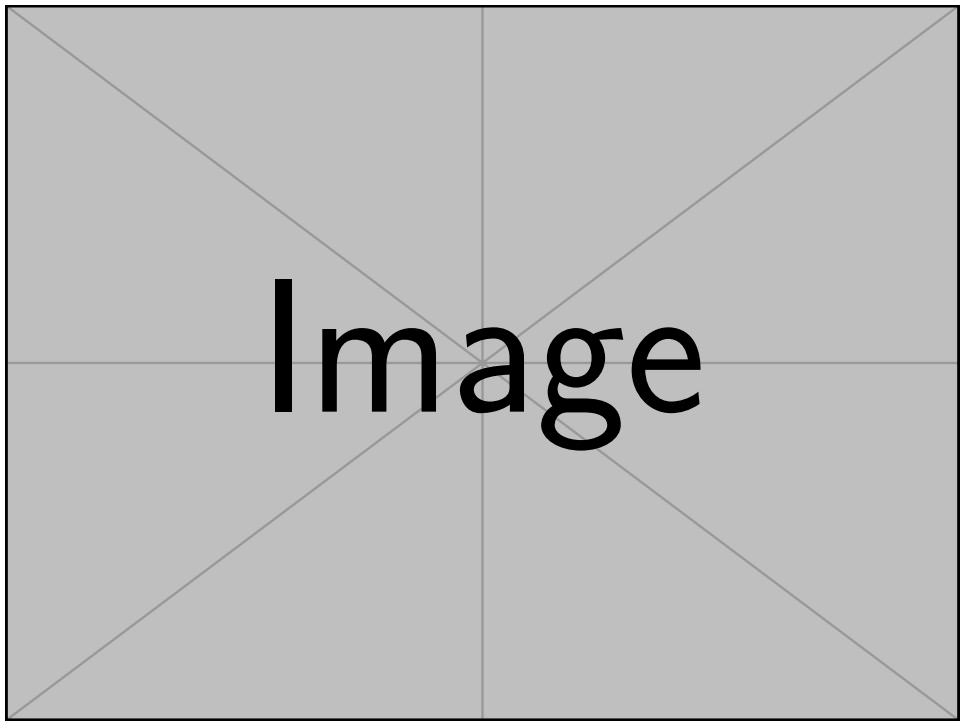



Figure 3: Example Figure A

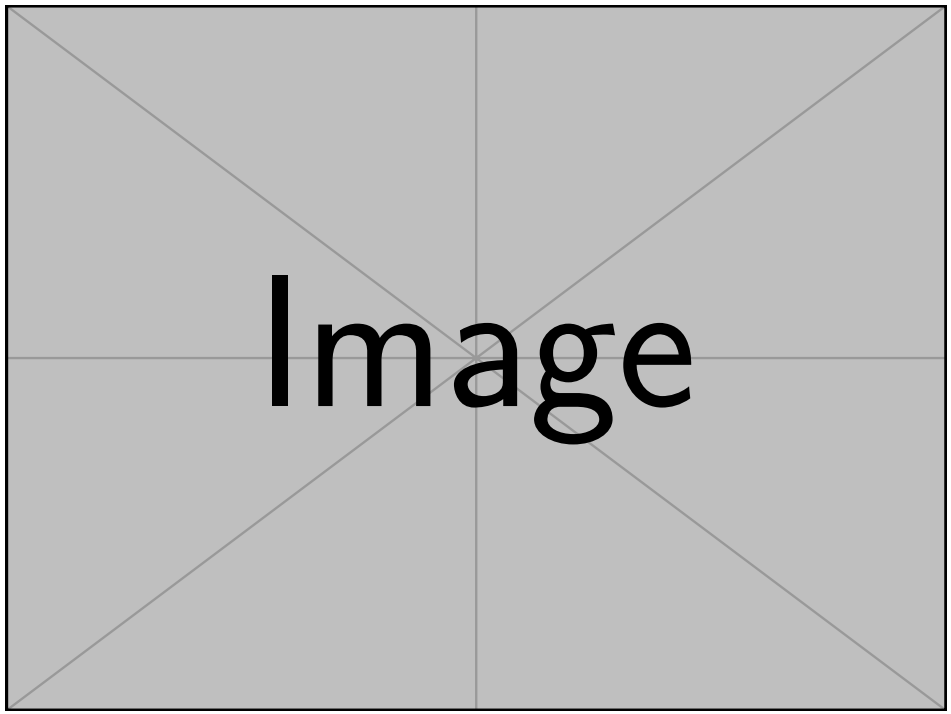



Figure 4: Example Figure A

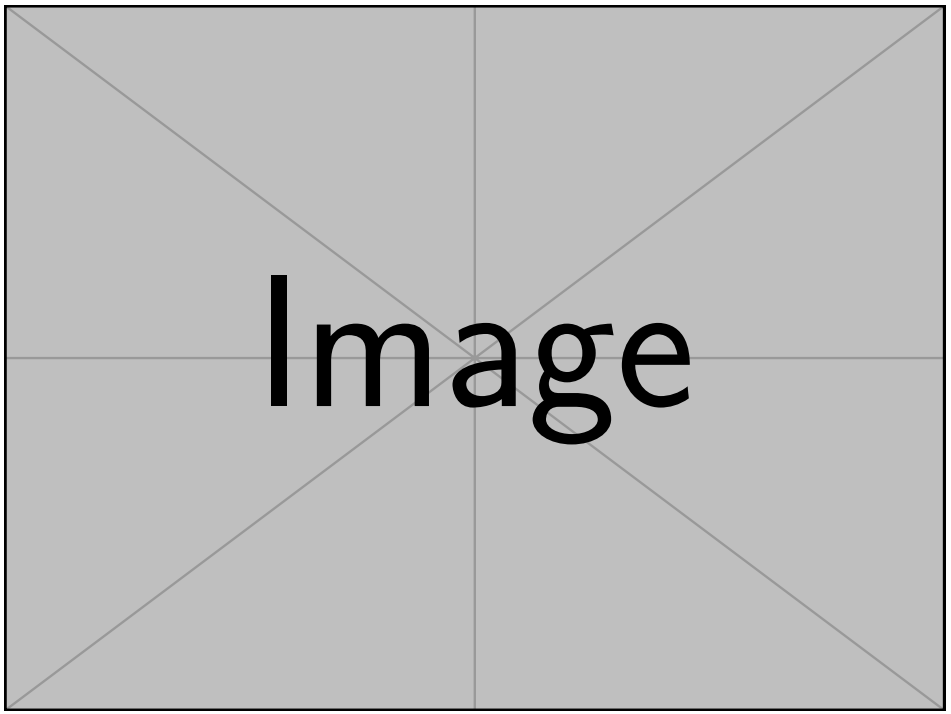



Figure 5: Example Figure B

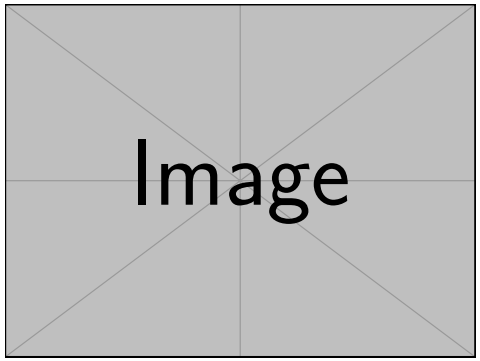



Figure 6: Example Figure A

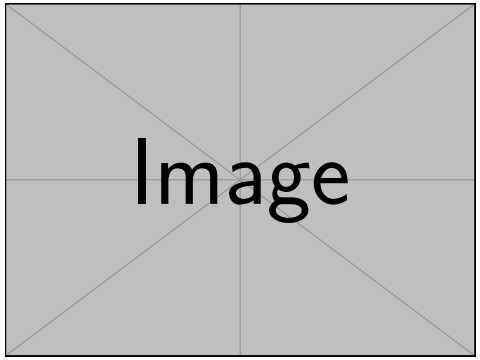



Figure 7: Example Figure C

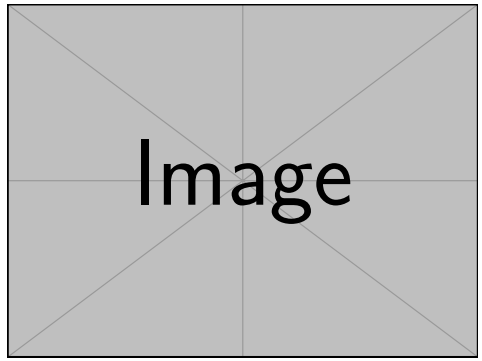



Figure 8: Example Figure B

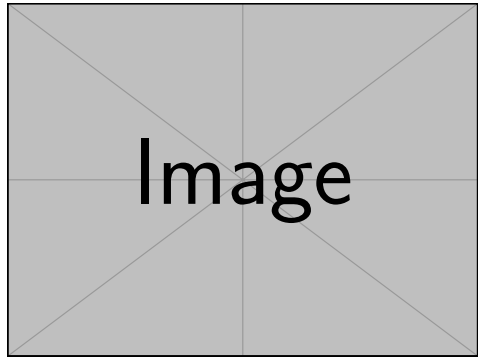



Figure 9: Example Figure D