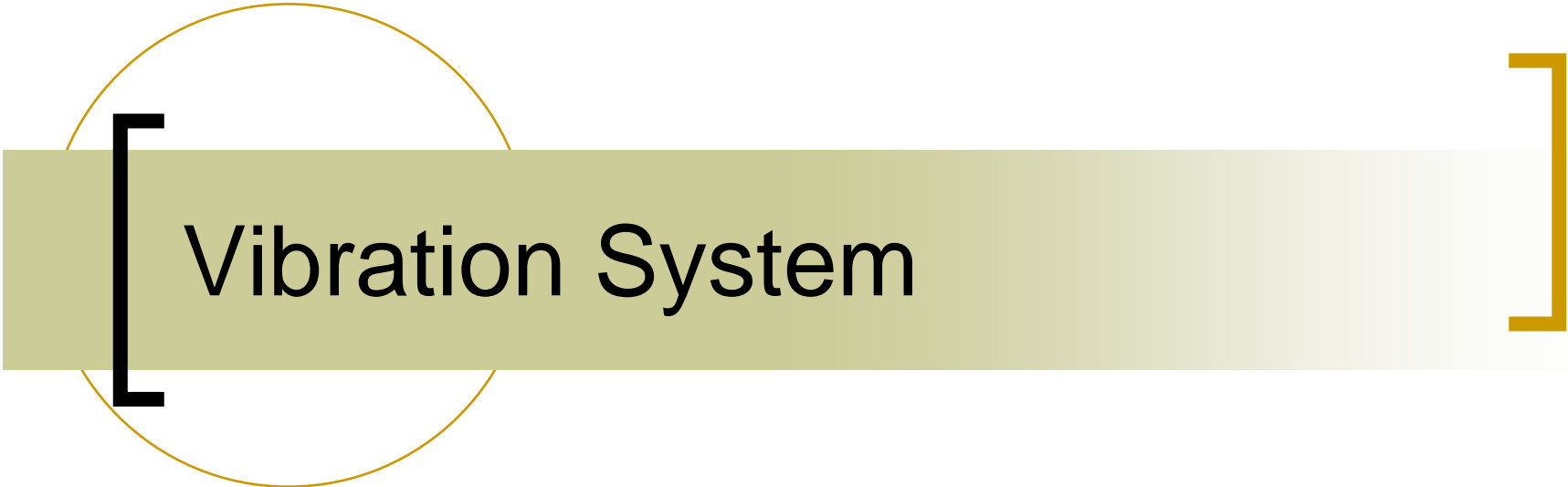




# Mechanical Vibration I (1)

Department of Mechanical and  
Control Engineering

Hiroshi Yamaura



# Vibration System

# Vibration systems and Vibration Technology

- Train
  - Vehicle
  - Ship
  - Building
- } Active and/or Semi-active Suspension
- Active Mass Damper, etc.
- { Vibration Suppression  
Vibration Isolation
- Rotating Machine    Balancing, Vibrator in Mobile Phone
  - Precision Equipment    Vibration Isolation Table

# [ Vibration Related Accident ]

- Collapse of Tacoma Narrows Bridge (1940) FIV
- Bursting of Turbine Rotor (1970) Unbalance Vibration
- Radiological Accident of Monju (1995) FIV
- Large Vibration of Millennium Bridge (2000) Resonance
- Overflow from Oil Tank (2003) Sloshing

FIV: Flow Induced Vibration