



ABAQUS

ME 498CA1 Fall 2016

Dynamic Analysis

ABAQUS Dynamics

Solution Procedures

- **Direct solution**—nonlinear cases
- **Modal superposition**—linear/mildly nonlinear cases



ABAQUS Dynamics

Solution Procedures

Direct solution—nonlinear cases

 Implicit dynamic analysis

 Subspace-based explicit dynamic analysis

 Explicit dynamic analysis

 Direct-solution steady-state harmonic response analysis

ABAQUS Dynamics

Solution Procedures

Direct solution—nonlinear cases

Implicit dynamic analysis

- Transient fidelity applications

- Moderate dissipation applications

- Quasi-static applications

Subspace-based explicit dynamic analysis

Explicit dynamic analysis

- Large dynamics problems

- Complicated contact conditions

- Large deformations or rotations

- Adiabatic stress analysis

Direct-solution steady-state harmonic response analysis

ABAQUS Dynamics

Solution Procedures

Modal superposition—linear/mildly nonlinear cases

- Mode-based state–state response

- Subspace-based steady-state harmonic response analysis

- Mode-based transient response analysis

- Response spectrum analysis

- Random response analysis

- Complex eigenvalue extraction