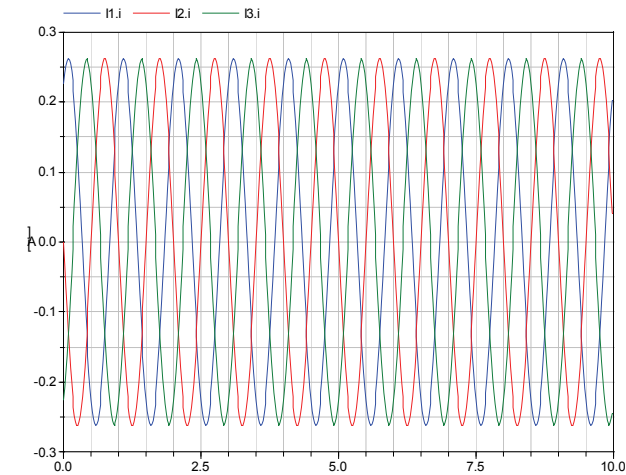# Mathematical Aspects of Object-Oriented Modeling and Simulation

7th International Modelica Conference
Como

Bernhard Bachmann

University of Applied Sciences

Bielefeld

Outline

- **Continuous system simulation**
  - Introductory example
  - Symbolic transformation
  - Efficiency issues and non-linearities
  - Higher index problems
  - Initialization
  - Numerical issues

- **Mixed system simulation**
  - Event handling
  - State events ⇔ time events
  - Symbolic transformation
  - Ideal components
  - Varying higher index problems
  - Efficiency and numerical issues

2009-09-20

B. Bachmann, FH Bielefeld

Mathematical Aspects of Object-Oriented Modeling and Simulation

2