Current research
-overview-

5 minutes presentation
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Ing. Bert Van Acker

CoSys-Lab
Constrained Systems Lab
University of Antwerp

Co-simulation environment

The need

"Software intensive systems" complexity ↗↗

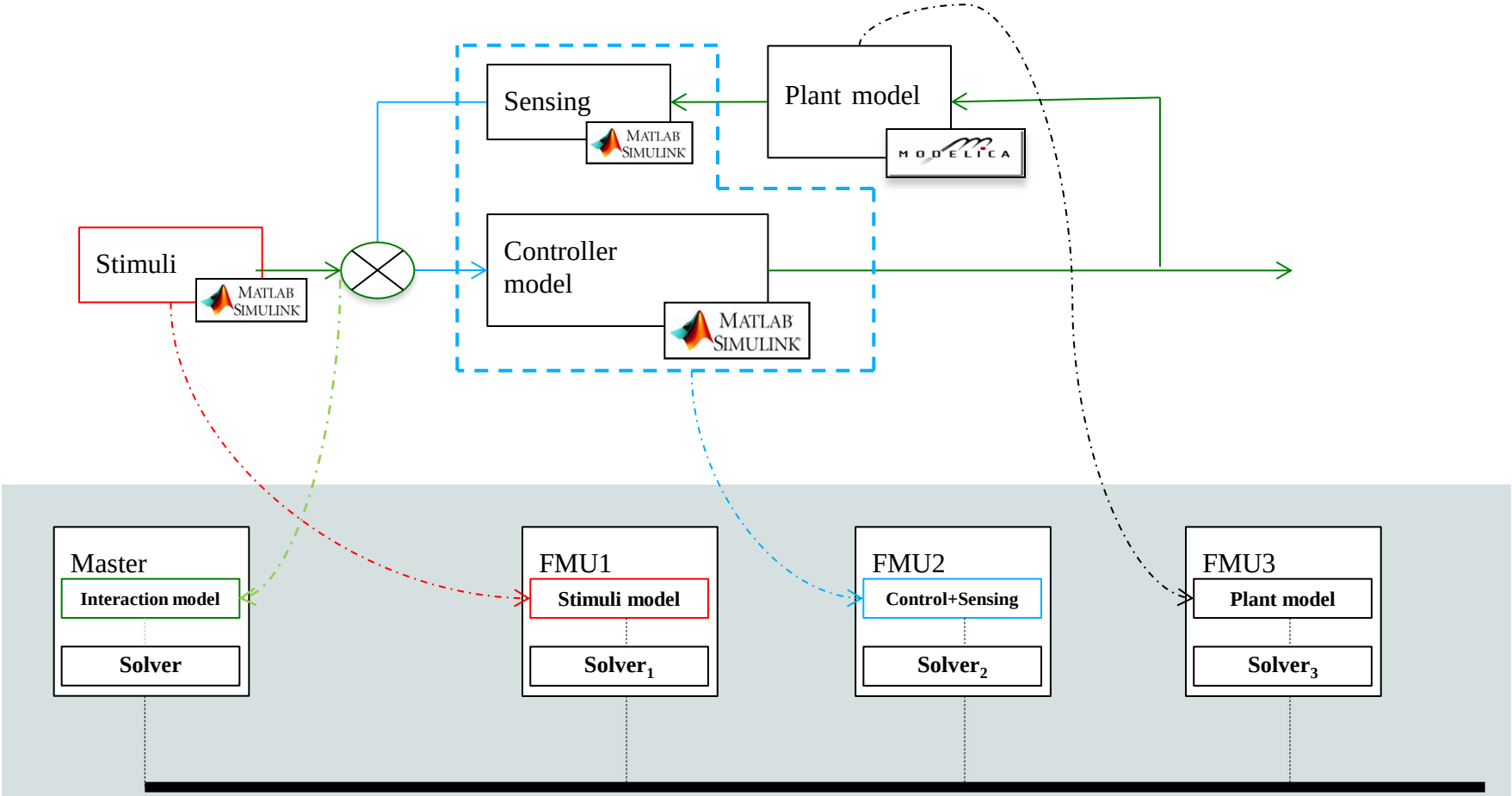
Modelling + Simulation of "system under design"

Correct level of abstraction

Heterogeneous formalisms

Co-simulation environment

The need



Covered by the FMI standard

Co-simulation environment

The challenges

Master NOT standardized

- Generic master ➔

  + One-time development

  - Run-time performance ↘↘

- problem-specific master ➔

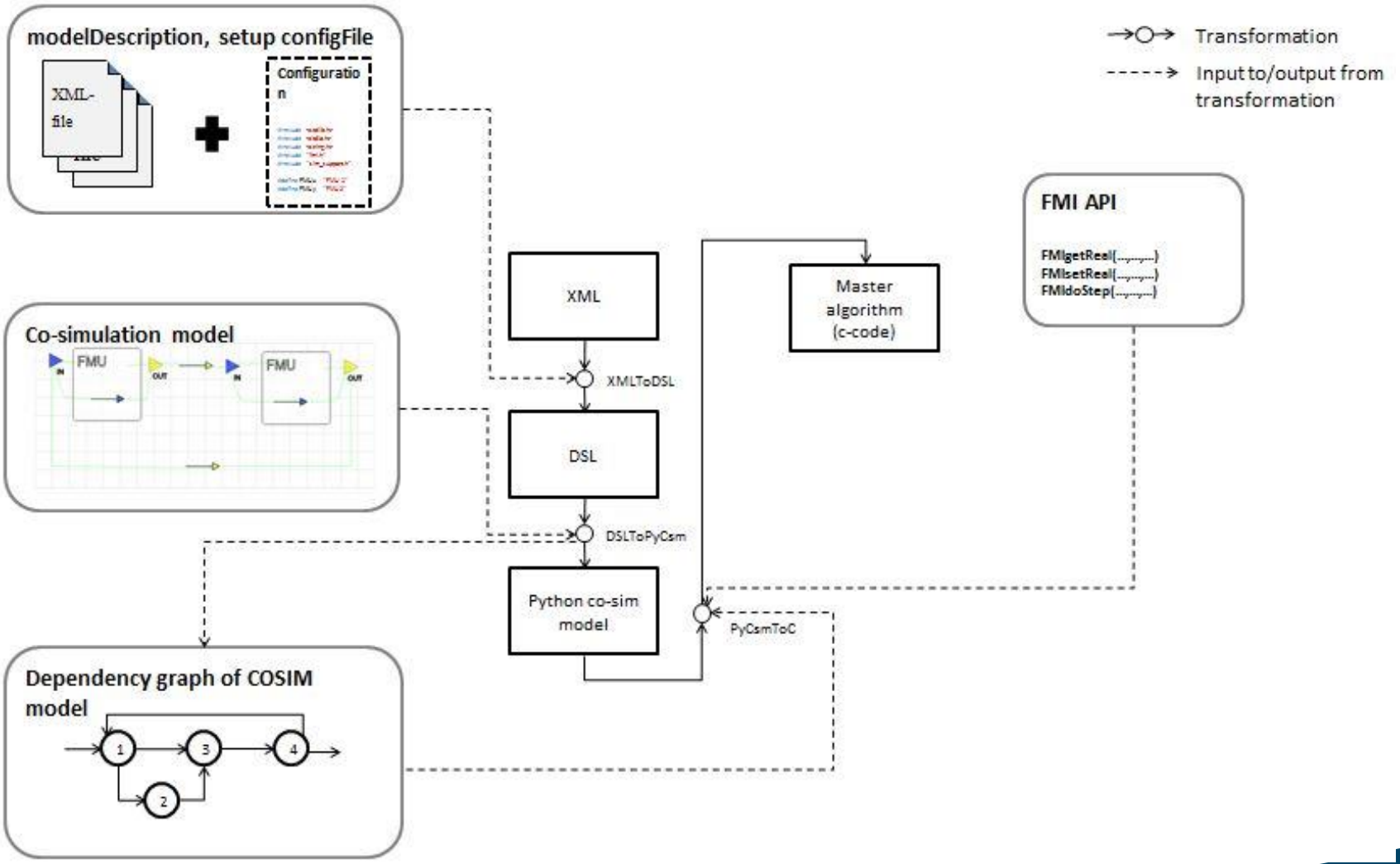
  + Perfectly adapted to the setup

  - Manual coded, error prone, laborious

Automatic generation

Approach

Transformations



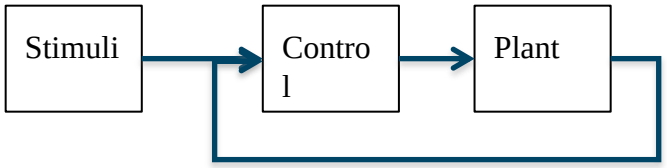
Future work

- Measure performance generic vs. Problem-specific
- Extend the compiler capabilities :
  - Variable stepsize
  - Simulation of discrete-event submodels
  - Multiple threads of execution

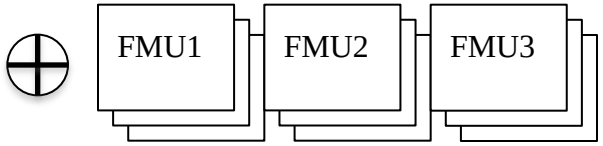
Future research topic

Model management

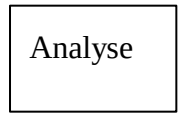
System model



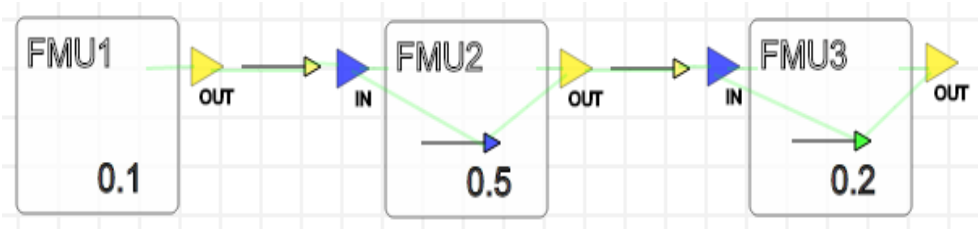
Model repository



Analyse model



Co-simulatie model



Future research topic
Model management

Capturing analysis to use as input

Model repository

- # views/ # abstractions of one subsystem component
- Consistency between models

Framework

- System model + analysis model ➔ co-sim model
- Detection of stubs/monitors
- Master algorithm generation

Merging FMUs and HW specific aspects

Questions

Questions?