



Hochschule
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Laboratory for
Mechatronic
and Renewable
Energy Systems
(LMRES)

**Nonlinear current control
with optimal reference voltage saturation (ORVS)
for electrically excited synchronous machines (EESMs)**

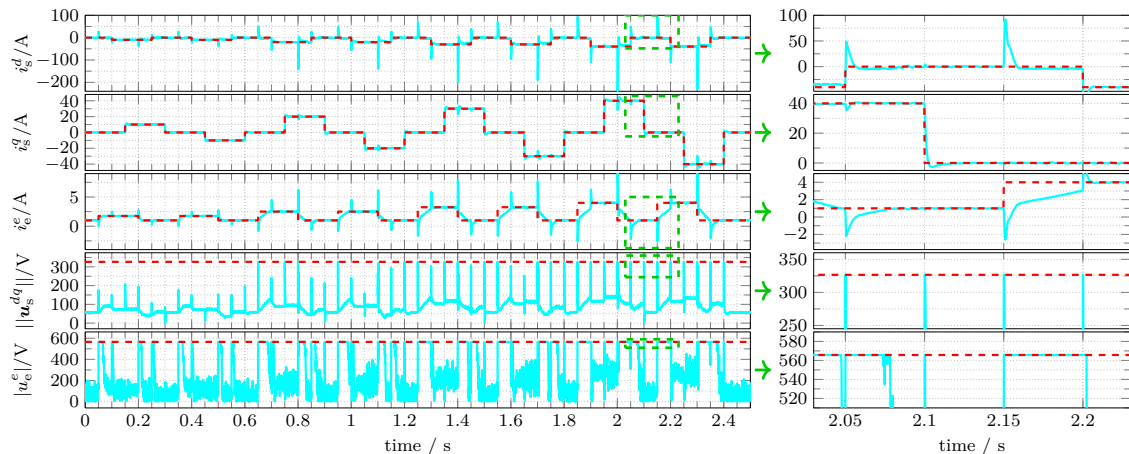
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Motivation

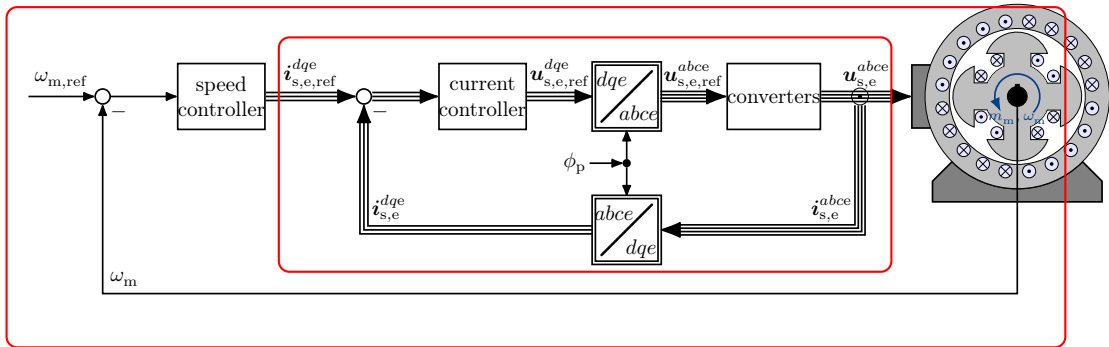
Simulation results performed on a real nonlinear EESM



[—] classical reference voltage saturation (CRVS)

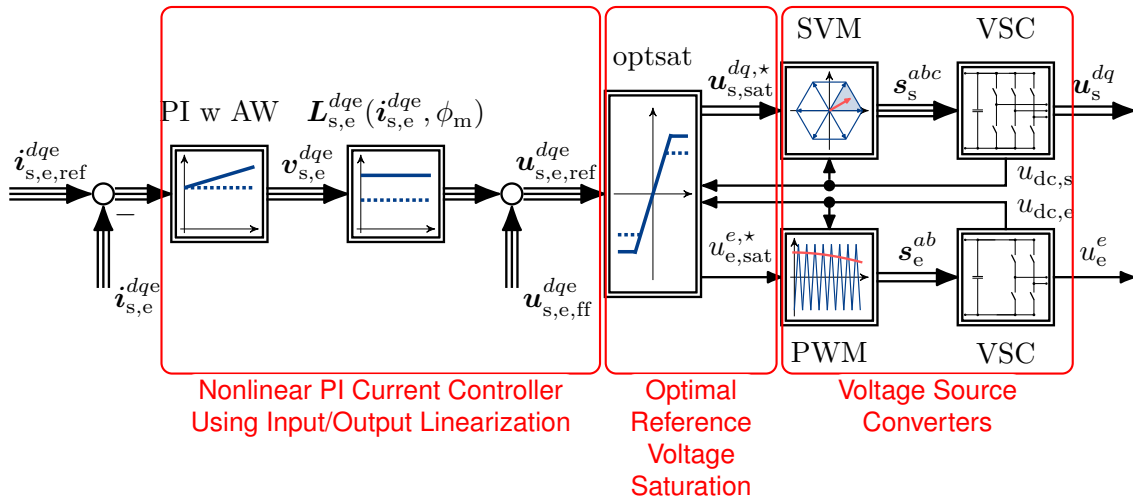
Introduction

Field oriented control of an EESM



Proposed Solution

Nonlinear PI-based current control with optimal reference voltage saturation



Validation

Simulation results performed on a real nonlinear EESM

