



# Technische Universität München

## Chair of ...

---

SOME PHD TITLE

Max Muster

Vollständiger Abdruck der von der Ingenieur fakultät Bau Geo  
Umwelt der Technischen Universität München zur Erlangung des  
akademischen Grades eines

### **Doktor-Ingenieurs**

genehmigten Dissertation.

Vorsitzender:

Univ.-Prof. Dr.-Ing. habil. ...

Prüfer der Dissertation:

1. Univ.-Prof. Dr.-Ing. ...
2. Prof. Dr. ...

Die Dissertation wurde am 3. Juli 2014 bei der Technischen  
Universität München eingereicht und durch die Ingenieur fakultät  
Bau Geo Umwelt am 31. Dezember 2014 angenommen.



## **Zusammenfassung**

Deutsche Version

## **Abstract**

English version

## **Acknowledgments**

This dissertation was written from 2011 to 2014 during ....

Max Muster  
Technische Universität München  
November 20, 2020



# CONTENTS

<b>List of Symbols</b>	<b>v</b>
<b>Contents</b>	<b>v</b>
<b>1 Introduction</b>	<b>1</b>
<b>A Algebraic Loops</b>	<b>7</b>





An investment in knowledge  
pays the best interest.

---

*Benjamin Franklin*

# CHAPTER 1

## INTRODUCTION

“Storm caused wind turbine fire”<sup>1</sup> this headline news is one which the manufacturers and designers of wind turbines try to avoid. The failure or wrong design of a wind turbine shut down mechanism can have a catastrophic consequence as shown in Figure 1.1.

Vector  $x$ :  $\mathbf{x}$   $\boldsymbol{\alpha}$

Matrix  $X$ :  $\mathbf{X}$   $\boldsymbol{\Gamma}$

Tensor  $x$ :  $\mathbf{x}$   $\boldsymbol{\alpha}$

Tensor  $X$ :  $\mathbf{X}$   $\boldsymbol{\Gamma}$

$\vec{\alpha}$

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et

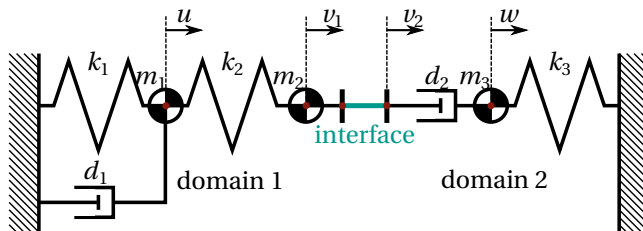
---

<sup>1</sup> <http://www.bbc.co.uk/news/uk-16115139> **bbc**

## 1 Introduction



**Figure 1.1:** Exploded wind turbine in Ardrossan, North Ayrshire, Scotland due to high winds and problems with the emergency shutdown **bbc**



**Figure 1.2:** Monolithic/co-simulation test problem

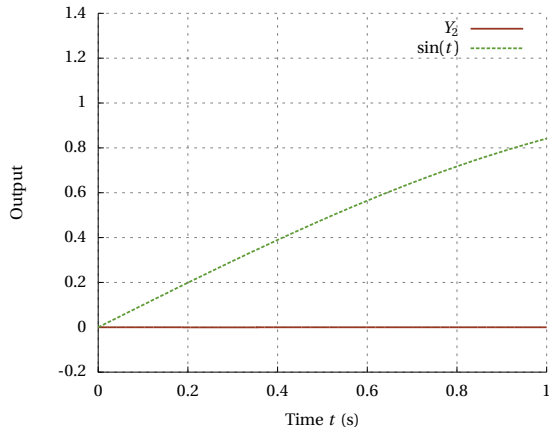
accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. see Definition 1.1

### **Definition 1.1:** (Physical) Field

“ A field is a physical quantity that has a value for each point in space and time. ”<sup>a</sup>

---

*a* gribbin1998q



**Figure 1.3:** Solution over time



# **Appendices**

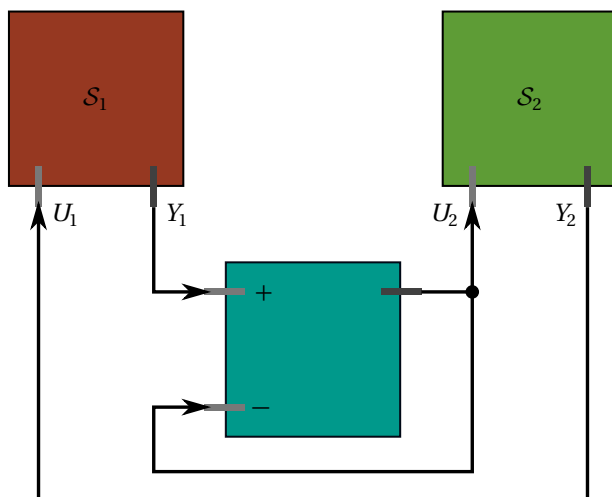




## ALGEBRAIC LOOPS

Figure A.1 which is causing the algebraic loop.

## A Algebraic Loops



**Figure A.1:** Block diagram that describes the algebraic loop example