

## 1 Variables

### 2 root

	var	symbol	documentation	type	units	eqs
8	$F_{N,A}$	F_N_A	fudamental incidence matrix	network		
5	$t$	t	time	frame	$s$	
6	$t^o$	to	starting time	frame	$s$	4
7	$t^e$	te	end time	frame	$s$	5
1	#	value	numerical value	constant		
2	1	one	numerical value one	constant		1
3	0	zero	numerical value zero	constant		2
4	0.5	onehalf	numerical value one half	constant		3

### 3 physical

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 4 control

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 5 reactions

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 6 material

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 7 macroscopic

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 8 solid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 9 fluid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----



## 10 liquid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 11 gas

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 12 control-control

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 13 gas–liquid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 14 gas–gas

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 15 liquid–liquid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 16 gas–solid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 17 solid–solid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----



## 18 liquid–solid

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 19 material–material

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 20 reactions-reactions

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 21 control-reactions

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 22 reactions-control

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 23 control-material

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 24 material-control

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 25 control-macroscopic

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----



## 26    macroscopic-control

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 27 reactions-material

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 28 material-reactions

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 29 reactions—macroscopic

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 30 macroscopic-reactions

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 31 material–macroscopic

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

## 32    macroscopic-material

	var	symbol	documentation	type	units	eqs
--	-----	--------	---------------	------	-------	-----

### 33 Equations

### 34 Generic

no	equation	documentation	layer
1	$1 := \text{Instantiate}(\#, \#)$	numerical value 1	root
2	$0 := \text{Instantiate}(\#, \#)$	numerical value zero	root
3	$0.5 := \text{Instantiate}(\#, \#)$	numerical value one half	root
4	$t^o := \text{Instantiate}(t, \#)$	starting time	root
5	$t^e := \text{Instantiate}(t, \#)$	end time	root