

이학박사학위논문

A Very Long  
English Title of  
Your Dissertation

한국어 제목

2030년 8월

서울대학교 대학원

지구환경과학부

너 이 름



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지도교수 백 종 진

이 논문을 이학박사 학위논문으로 제출함

2030년 5월

서울대학교 대학원

지구환경과학부

너 이 름

너이름의 이학박사 학위논문을 인준함

2030년 7월

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A Dissertation Submitted to the Faculty of the  
Graduate School of Seoul National University in  
Partial Fulfillment of the Requirements for the  
Degree of Doctor of Philosophy

August 2030

Advisory Committee:

Professor Famous Kim, Chair  
Professor Jong-Jin Baik, Advisor  
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Name et al., 2021. *J. Good Sci.* 96, 105708;

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1 3 5 7 8 6 4 2

## Abstract

The abstract should not be too long but long enough (> 2 pages). This should not have any citations or references to chapters. It can be broken up into paragraphs. Example text: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

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**Keywords:** PhD, CUMG, dissertation, template, cloud, urban, chaos

**Student ID:** 0000-00000



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# 1 An Example Chapter

## 1.1 Basic guide: How to use the L<sup>A</sup>T<sub>E</sub>X template

Note that in English writing, the first paragraph is generally not indented.

Here's how an equation is inserted:

$$\frac{d}{d\tau}\delta Z_k = -k^2 b \delta Z_k + \sum_{(i,j) \in Q_k} (k X_i \delta Y_j \mathcal{S}_Z). \quad (1.1)$$

Notice, for the summation, the command `\smashoperator` is used for nicer alignment (otherwise, there will be a gap between  $+$  and  $\Sigma$ ). Here's how to insert block equations:

$$\dot{X} = -\sigma X + \sigma Y, \quad (1.2)$$

$$\dot{Y} = -XZ + rX - Y, \quad (1.3)$$

$$\dot{Z} = XY - bZ, \quad (1.4)$$

where  $r$ ,  $\sigma$ , and  $b$  are real positive parameters, and the dot above each variable denotes its first derivative with respect to the scaled time  $\tau$ . Note that the word “equation” is indexed. To activate index, retrieve the `\makeindex` command at the end of this document. This is how inline math works: the variable  $x$  is a random variable pulled out of a normal distribution:  $x \sim \mathcal{N}(\mu, \sigma)$ . Equations are referenced with parentheses only as in (1.2)–(1.4).

The following is the theorem environment. The options include: definition, theorem, proposition, lemma, and proof.

**Definition 1.1** Given a compact metric space  $X$ , a continuous map  $f : X \rightarrow X$  is *chaotic* if

- (a)  $f$  is topologically transitive; i.e., there exists an initial condition  $x_0 \in X$  such that for every  $\delta > 0$  and  $y \in X$ ,  $|f(t, x_0) - y| < \delta$  at some time  $t$ ,
- (b) the periodic points of  $f$  are dense in  $X$ ; i.e., the initial conditions leading to periodic orbits form a dense set in  $X$ , and
- (c)  $f$  exhibits sensitive dependence on initial conditions; i.e., given an error bar  $\varepsilon > 0$ , for every  $\delta > 0$  and  $x \in X$  there exists  $y \in X$ ,  $|x - y| < \delta$ , such that  $|f(t, x) - f(t, y)| \geq \varepsilon$  at some time  $t$ .

This is how citation works. For inline citation, use `\textcite` as in Ahmed et al. (2020) and Kalnay (2010). For parenthetical citations, use `\parencite` as follows (Aligo and Gallus 2009; Lorenz 2006). Here's how footnote works<sup>1</sup> Datasets are also cited properly, but be sure to use the right format in the `references.bib` file (ECMWF 2021; Copernicus Climate Change Service (C3S) 2017).

Chapters and sections can also be referenced if labeled properly. For example, this is Chapter 1. The next section is Section 1.2.

Units should be implemented using `siunitex`. For example, the length of this page is 1 km. My favorite temperature is 18 °C. I can walk at the speed of  $\sim 30 \text{ m s}^{-1}$ .

Here's a theorem:

---

<sup>1</sup>Like this. You can also include citations in the footnote (Argyris et al. 2005; Arnett and Meakin 2011).

**Theorem 1.1** *Let  $f$  be a continuous real function defined on a closed interval  $[a, b]$ , and let  $\epsilon > 0$  be given. Then there exists a polynomial  $p$  with real coefficients such that  $|f(x) - p(x)| < \epsilon$  for all  $x$  in  $[a, b]$ .*

## 1.2 Inserting figures and tables

### 1.2.1 Inserting a figure

Moving on to the figures: figures should be placed in the center of their own separate page. The captions should go directly below it or in some rare cases (not recommended) on the next page at the center. It is shown in Fig. 1.1 how png files are inserted. Figure 1.2 shows how eps files are inserted. As usually, the figures can be cropped by using the trim command. I think the numbers for the crop margins mean: left, top, right, bottom, in this order, but I am not sure.

pgf/TikZ can be a handy tool for diagrams especially if you don't want to deal with inkscape or Adobe (*see* Fig. 1.3)

### 1.2.2 Inserting a table

Table 1.1 shows how a table can be inserted. If the table is too long, then it can be rotated  $90^\circ$  as shown in Table 1.2.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

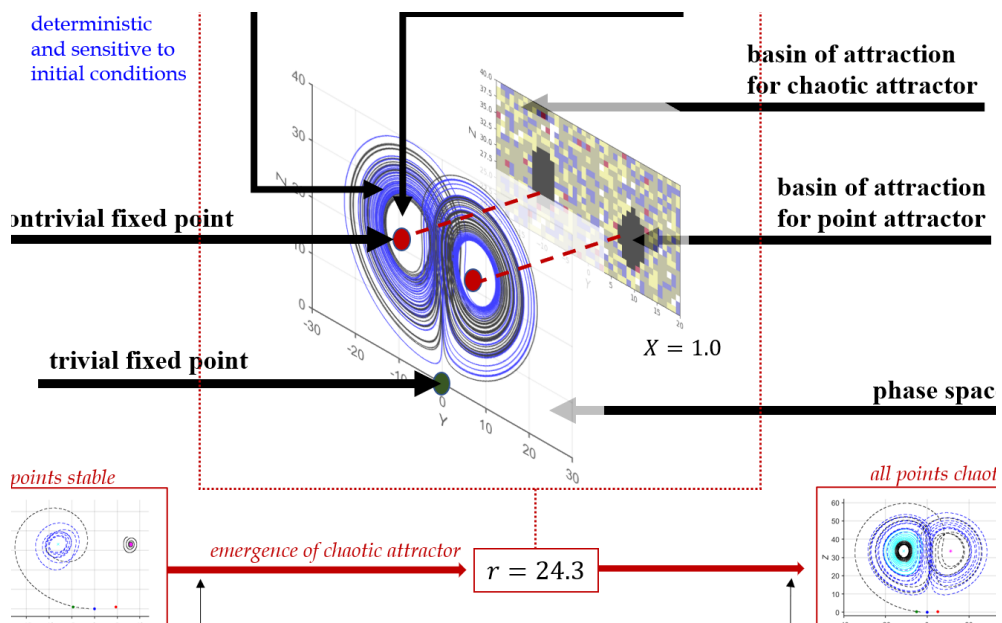
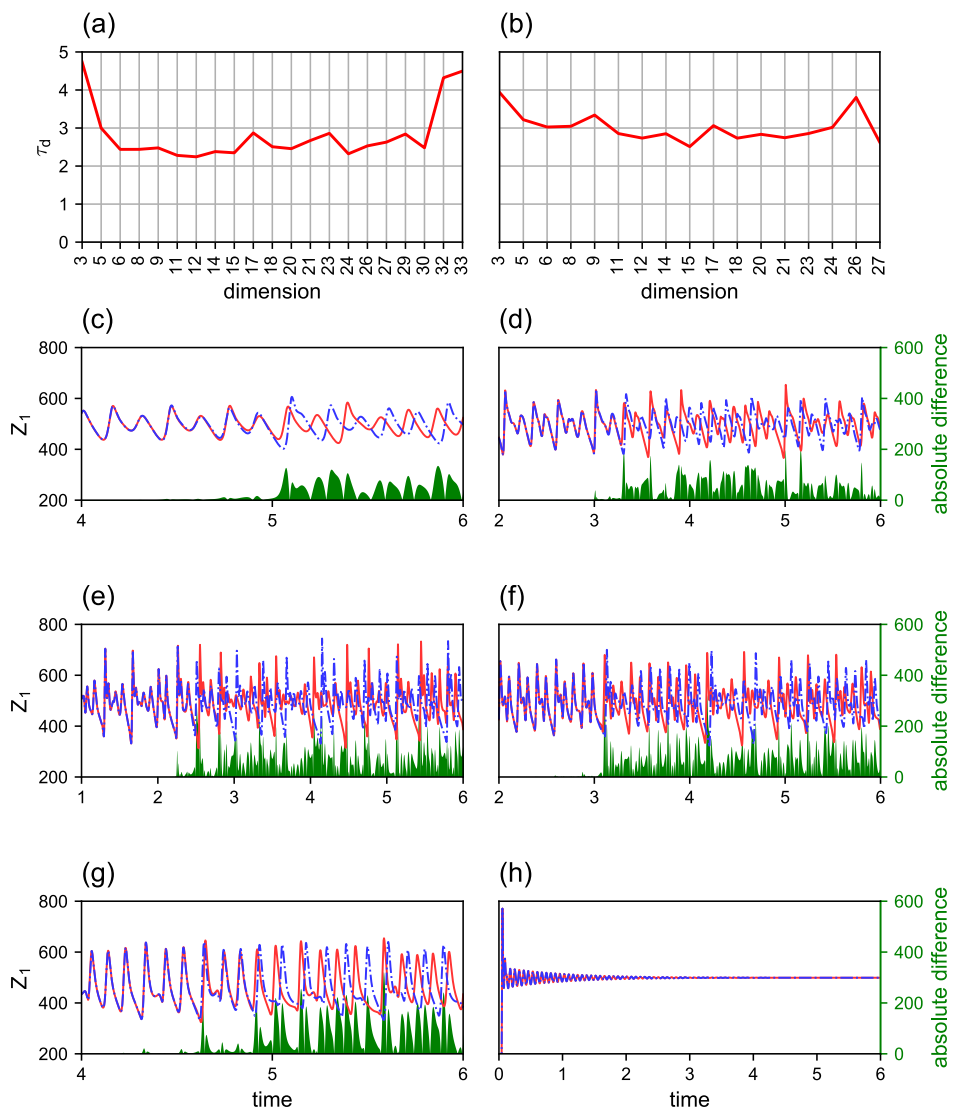
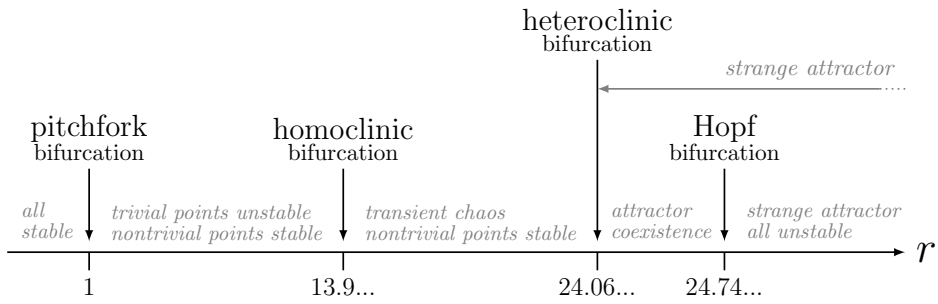


Figure 1.1 Example of png figure insertion.





**Figure 1.2** Example of eps figure insertion.



**Figure 1.3** An example TikZ plot.

**Table 1.1** This is an example table caption. Some argue that table captions should omit periods. I am not so sure about that.

	vs. original	Horizontal	Diagonal
Level 1	0.1704	0.0198	0.0208
Level 2	0.0426	0.0037	-0.0015
Level 3	0.0024	0.0032	0.0022

**Table 1.2** Example table caption. In order to include references to other figures or tables, be sure to use the “protect” command as follows: Fig. 1.3.

Classification	<i>r</i> value			Receiver dimension		
	500	525	550	575	600	624
Correlation coefficient	0.9083	0.9240	0.8983	0.9041	0.8666	0.9513
						0.9611

## 2 Other Things

Sometimes paragraphs are too weird that words tend to stick out. In that case use the `sloppypar` environment for that paragraph. Do not overuse it as it can make the paragraph look bad.

If there is a hanging line with only one word, be sure to put repalce the space with `\tilde`: For example, this is the end of the sentence.

For chapter headings, the title inside the brackets is the one showing up in the table of contents. For the sake of creating an example, I made this chapter title so that it occupies two lines in the table of contents.

### 2.1 Font usage: Best practices

Specialized terminologies, *jargon*, should be italicized by `\emph`. Questions or block quotations should be slanted, which is different from the italic font—A *slanted question, isn't that weird?* The following block quote is from Crichton (1990):

*Broadly speaking, the ability of the park to control the spread of life-forms. Because the history of evolution is that life escapes all barriers. Life breaks free. Life expands to new territories. Painfully, perhaps even dangerously. But life finds a way.*

Note that block quotes do not have quotation marks. By default, hyphenation should not happen so often. To suppress hyphenation of a specific word like `thisveryimportantname`, use the `\mbox` command.

For in-text all-caps fonts, small-caps are recommended. For example, use `COVID-19` rather than `COVID-19`.

## 2.2 Backmatter

After the last main chapter (which is probably Summary and Conclusions), only include Bibliography when you are defending. After defense, the submission copy should also have the Korean abstract and acknowledgments. English acknowledgments generally go in the front matter, but the SNU Library rules state that it should go in the back matter. If the acknowledgments are written in Korean, it should go at the very end. The English acknowledgment uses the command `\acknowledgment` and the Korean acknowledgment uses the command `\acknowledgement`. Optionally, Index can also be included.

## 2.3 Some notes on bibliography

Bibliography follows the AMS format. General guidelines for your bib file include:

- Names must be input in the following format: Baik, J.-J. and Seo, J. M. and Moon, S
- Only the first letters of article titles capitalized except after colon. Ex. An new study: Part I
- The first letter of every word except conjunctions/prepositions must be capitalized. The book titles follow the same style as the journal name style (italicized). Ex. *Jurassic Park*

- See the AMS website for proper journal abbreviations.
- URLs and DOIs are typeset in sans-serif.
- Refer to the included `references.bib` for specific examples.

## 2.4 Example text: Lipsum

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetur odio sem sed wisi.

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Mauris porttitor pharetra tortor. Sed fringilla justo sed mauris. Mauris tellus.  
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congue. Maecenas urna mi, suscipit in, placerat ut, vestibulum ut, massa. Fusce  
ultrices nulla et nisl.



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**주요어:** 서울대, 박사, 대류 도시 기상 연구실, 템플릿

학위 논문, 구름, 도시, 혼돈

**학 번:** 0000-00000



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