

Introducing Digital Library & Museum of Buddhist Studies at National Taiwan University

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SINCE 1928



 國立臺灣大學圖書館

DLMBS (Digital Library and Museum of Buddhist studies)

- Over 400 thousand records of books, research papers, theses and dissertations in 45 languages and digitized Buddhist scriptures.
- Aim to be one of the most comprehensive sources for Buddhist studies literature

<http://buddhism.lib.ntu.edu.tw/DLMBS/en/index.jsp>



佛學數位圖書館暨博物館
Digital Library & Museum of Buddhist Studies

A comprehensive database of Buddhist Studies in multiple Languages

- Chinese, Japanese, English, German, French, Korean, Tibetan ...etc. in 45 kinds of language
- Bibliography : **402,487** record entries ; Full text : **39,775** record entries

(chart 1) Record entries of DLMBS in each language

	Chinese	Japanese	English	German	French	Korean	Tibetan	Multiple language	Others	total
Bibliography	234,101 58.2%	102,955 25.6%	56,903 14.1%	2,731	1,675	380	182	2,578	504	402,009
Full text	17,900 46%	8,484 21.8%	11,027 28.3%	327	48	30	0	1041	15	38,872

Until 2017. October

3. Multiple category-major in the journal articles

Until 2017. October

Publication type	Bibliography	Full Text
1. Journal Article	297,067	31,758
2. Book	73,391	825
3. Research Paper	7,280	707
4. Book Review	6,807	3,005
5. Thesis & Dissertation	6,273	316
6. Conference Papers	5,498	1,109
7. Serial	2,937	1,356
8. Sound Recording	921	11
9. Reference Book	709	10
10. Internet Resource	535	375
11. Motion Pictures & Video recordings/ Audio-visual Materials	431	2
12. Collected Papers	287	18
13. Others	227	69
14. E-book	45	21
15. Microfilm	2	0
Total	402,009	39,582



Search interface

1. Concept of faceted classification

2. Full text browse

3. bibliography output

4. Browse more details

6. Bibliography preview

7. Key word suggestion

5. Connect "Author Authority Database"

The screenshot displays a search results page with the following elements:

- Search Results: 72** (Total results)
- Faceted Classification (Left Panel):**
 - Publication Year:** Filtered to 1952 ~ 2016. Includes an 'Update' button and a list of years with counts: 2016 (3), 2015 (2), 2013 (1), 2012 (1), 2010 (1). Includes an 'Update' button and a 'Show More' link.
 - Content Type:** Includes 'Journal Article (38)', 'Book (25)', 'Book Review (7)', and 'Thesis and Dissertation (2)'. Includes an 'Update' button.
- Export and Navigation (Top):** Includes an 'Export' button, navigation arrows, and a page indicator '1 / 4 GO'.
- Bibliography Output (Main List):**
 - 1. **Double Reincarnation** [Fulltext] by Nath, Caroline. 《World Press Review》, v.43 n.2 (1996.02), 31. Includes a green 'Open' icon and a 'Browse more details' icon.
 - 2. **Five Lectures on Reincarnation** [Fulltext] by Abhayananda, Swami. (2006.01), 52. Includes a red 'Download' icon and a 'Browse more details' icon.
 - 3. **Non-self and Reincarnation** by Leggett, Trevor. 《The Middle Way》, v.80 n.4 (2006.02), 219 - 232. Includes a 'Browse more details' icon.
 - 4. **Tanha, kamma and Reincarnation** by Nieminen, Taina. 《Culture through the ages: Prof B. N. Puri felicitation volume》 (1996), 41 - 57. Includes a 'Browse more details' icon.
 - 5. **Reincarnation ou Immortalite** by Habachi, Rene. 《Etudes》, v.269 (1999.11), 521 - 522. Includes a 'Browse more details' icon.
- Bibliography Preview (Right Panel):**
 - Double Reincarnation** [Fulltext] by Nath, Caroline. 《World Press Review》, v.43 n.2 (1996.02), 31.
 - Article on External Site** (with green 'Open' icon).
 - Keywords:** PANCHEN lamas; PRIESTS, Buddhist -- Lineage; GEDHUN Choekyi; Nyima; GYAINCAIN Norbu; Buddhism and politics; 輪迴.

Other special features

- Buddhist Author Authority Database : **100,551** record entries
- Subject heading Database : **2,725** record entries
 - A controlled vocabulary, which is in five languages, including Chinese, English, Japanese, German, and French, was used to help users search DLMBS's bibliographic database.
- Trpiṭaka : Taisho Shinshu Daizokyo , 𑖀𑖩 Xuzangjing
Dragon Sutra, Yongle Trpiṭaka
Pali Trpiṭaka, Tibetan Trpiṭaka, Sanskrit Trpiṭaka
- Language lessons : Sanskrit Lessons, Tibetan Lessons,
Pali Lessons
- Related Links : **775** academic website

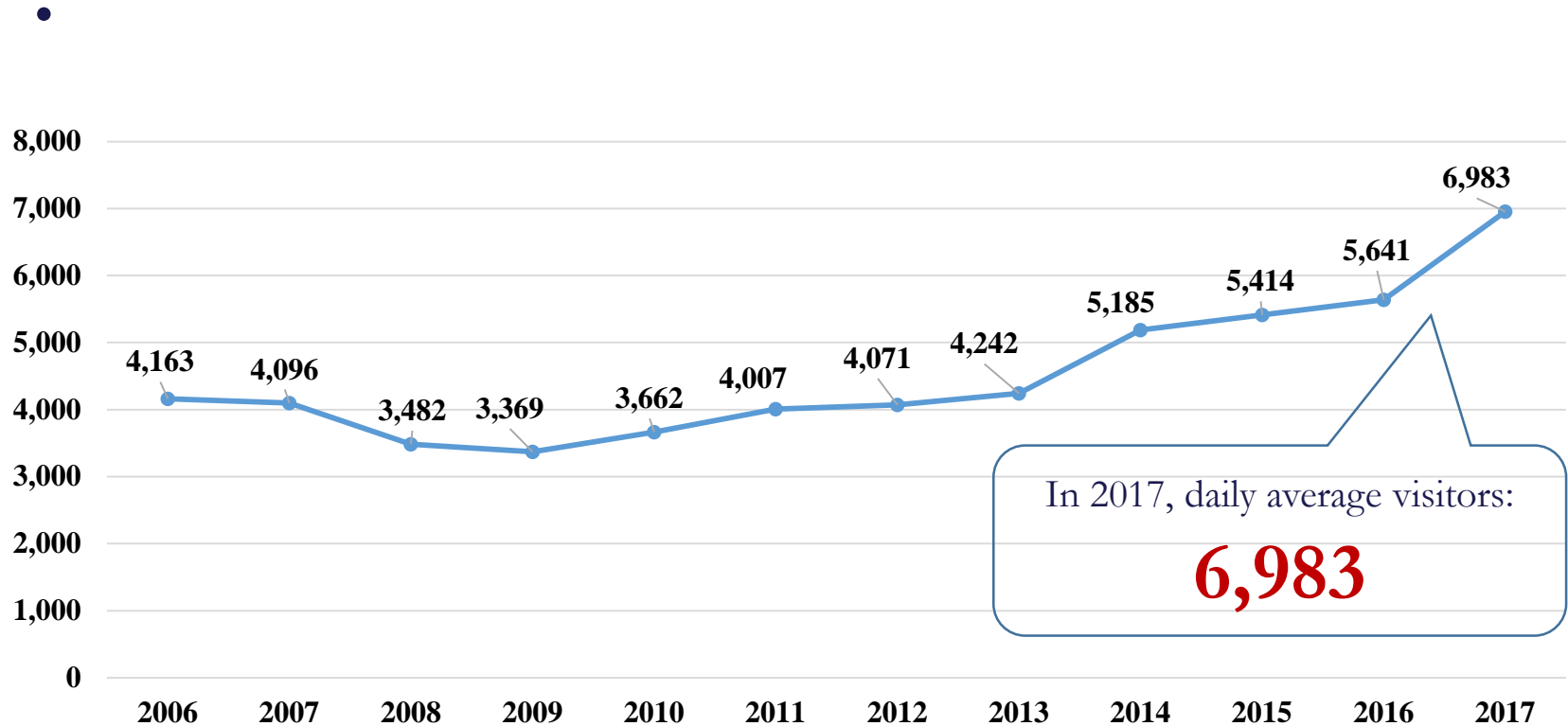
Until 2017. October

Record sources

Area	Database
Taiwan	National Taiwan University Library (NTU Library) National Digital Library of Theses and Dissertations in Taiwan(NDLTD in Taiwan) National Central Library PerioPath Index to Taiwan Periodical Literature System Library of Luminary Buddhist Institute Airiti Library Taiwan Academic Institutional Repository (TAIR)
Japan	CiNii : National Institute of Informatics (The largest entrance to Japanese journals) INBUDS : Indian and Buddhist Studies Treatise Database
China	CNKI : China Knowledge Resource Integrated database CALIS : China Academic Library & Information System National Social Sciences Database (http://www.nssd.org/)
Europe and America	WorldCat : Global Bibliographic Information Database OCLC : Global Library Cooperation Organization JSTOR : an online system of collecting Academic journals in Europe EBSCOhost : the largest Academic Search Complete (ASC) Database in the world PROQUEST company

Daily average visitors increase consistently

(Date : From 2006 to 2017.9)



(chart 4) curve graph: **daily average** visitors during past years

USERS ARE FROM 212 COUNTRIES/REGIONGS

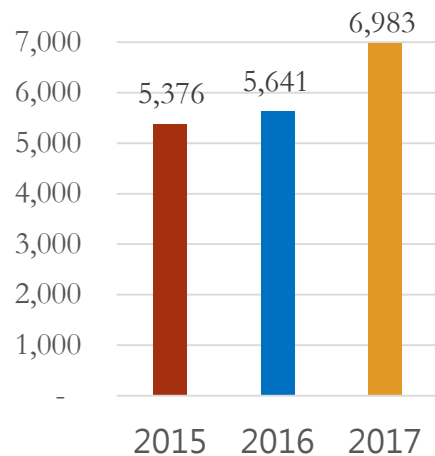
	2015	2016	2017
1	USA	USA	USA
2	TAIWAN	TAIWAN	TAIWAN
3	CHINA	CHINA	CHINA
4	GERMANY	GERMANY	GERMANY
5	H.K.	RUSSIA	RUSSIA
6	RUSSIA	H.K.	H.K.
7	JAPAN	JAPAN	JAPAN
8	MALYSIA	S. KOREA	MALYSIA
9	S. KOREA	SIGNAPORE	FRANCE
10	CANADA	MALYSIA	S.KOREA

(2017, September)

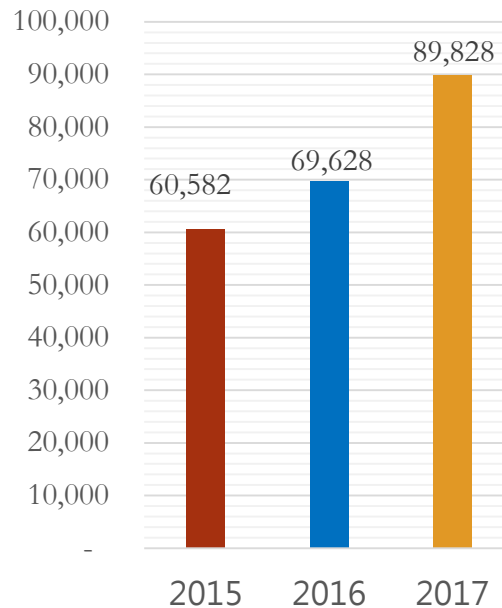


Number of pages viewed and CTR increases yearly

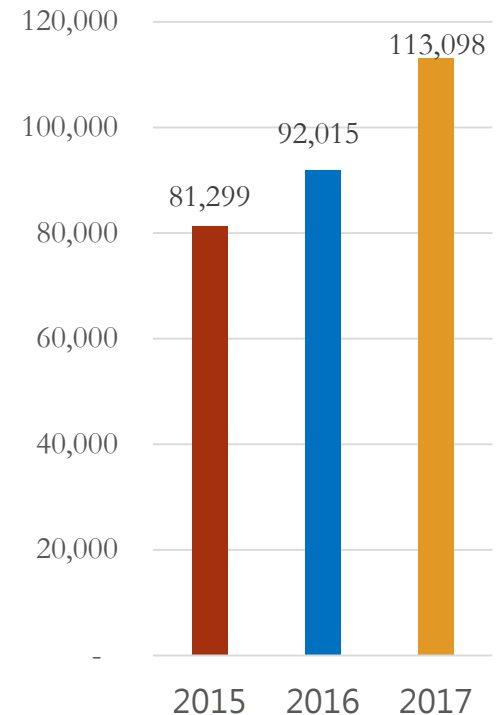
Visitors daily



Number of pages viewed daily



Daily hits



(chart 5) Compare graphs of 2016 usage habit in 2014, 2015 and 2016.

Until 2017. September

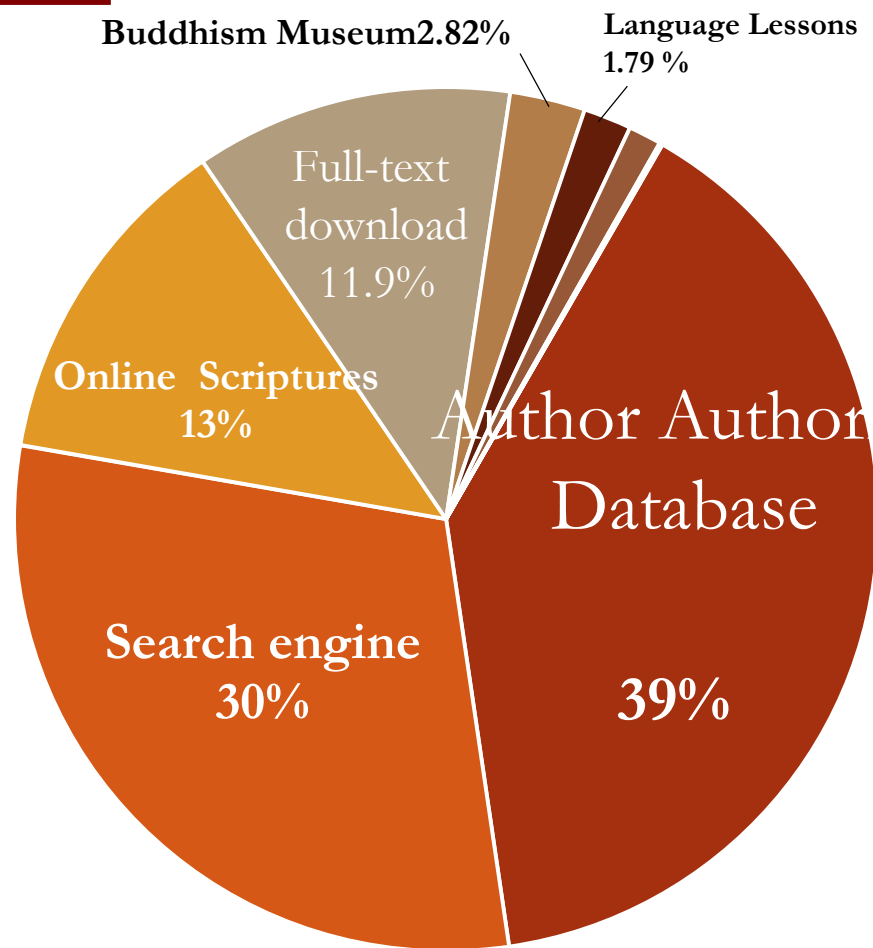


Session duration increases over time

	Number of sessions last longer than half an hour	Percentage of sessions last longer than half an hour
2013	93,986	6.15 %
2014	173,231	9.21 %
2015	140,548	7.17 %
2016	213,248	10.42 %
2017	239,076	12.55 %

Use of Main Functions

Function	Number of pages	percentage
Author Authority Database	1,753,595	39.34%
Search engine	1,340,116	30.07%
Online Scriptures	567,718	12.74%
Full-text download	530,369	11.90%
Buddhism Museum	125,792	2.82%
Language Lessons	79,721	1.79%
Latest News	54,998	1.23%
Full-text	3,097	0.07%
Donation	1,345	0.03%
Links	462	0.01%

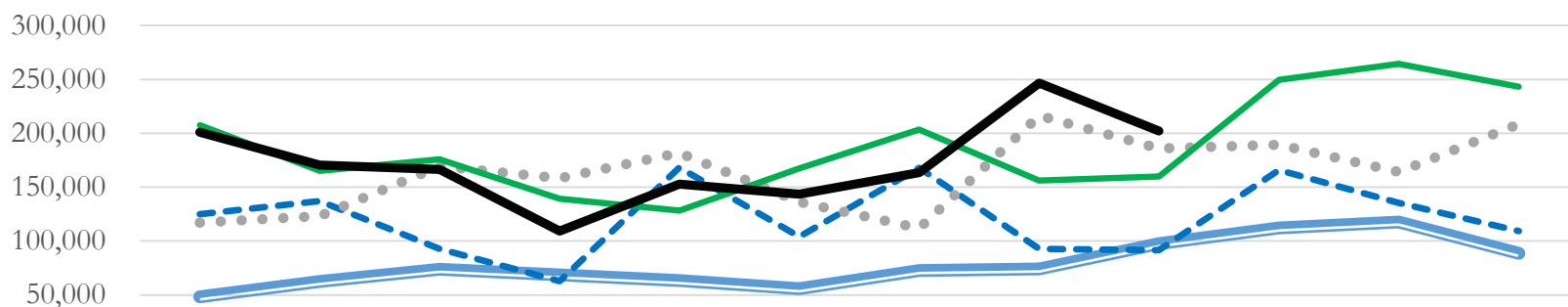


(between Jan. 2016 ~ Jul. 2016)

Buddhism Author Authority Database : up to **100,799** authors

Since 2013, it became popular and the Click through rate(CTR) has risen up.

	2013	2014	2015	2016	2017
Yearly Accumulation	935,406	1,452,063	1,962,404	2,228,170	1,555,206
Daily Average	2,598	4,000	4,488	6,138	5,739



	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月
2013年	48,220	62,498	73,744	68,632	63,386	55,797	72,706	74,214	97,563	112,261	117,669	88,716
2014年	124,765	137,206	92,646	62,789	168,295	103,888	167,745	92,726	91,539	165,726	135,392	109,346
2015年	117,110	123,261	169,423	158,403	181,887	136,108	111,902	216,392	185,994	189,341	164,043	208,540
2016年	207,571	165,006	175,928	139,378	128,122	167,414	203,296	156,124	159,802	249,711	264,371	243,315
2017年	200970	170370	166464	109104	152759	143432	163610	246,489	202,008			

(Pic 6) Buddhism Author Authority Database **Monthly CTR** curve graph Until 2017. September

A domain analysis of Buddhist studies

- Tang, M.C., Cheng, K. Y. (2017). A cross-language co-word network comparison of Buddhist literature in Digital Library and Museum of Buddhist study. Digital Humanities 2017, Montreal, Canada.

Research Questions

- What are the major subdomains/specialties in Buddhist studies?
- Is there recognizable transition of research topics over time (pre and after 1987) in Buddhist studies ?
- Are there differences in major research topics in three language communities of Buddhist studies (English, Chinese, Japanese)?

Research procedures

- 1. Extracted author assigned keywords or subject headings
- 2. Construct co-word network by similarity measures
- 3. Identify major research themes in different language communities
 - Perform filtering
 - Perform modularity analysis
 - Node aggregation
 - Extract significant terms in each modularity class for labeling
 - Expert feedback on the quality of classification
- 4. Interpretation of the evolution of the domains

Descriptive statistics of the materials

Publication types	Chinese		Japanese		English	
	1957-1986	1987-2016	1957-1986	1987-2016	1957-1986	1987-2016
Journal Article	7508	37065	15058	13085	6041	10958
Book	2148	10088	2466	3788	3448	8756
Research Paper	2055	1287	253	398	38	158
Thesis/Dissertation	245	3264	2	47	485	1359
Proceeding Article	66	2322	16	67	5	241
Book Review	5	162	165	203	135	2030
Online eBook	0	0	0	0	1	5

Ch1957-1986

生無性一行三昧 似同法喻
相無性 般舟三昧
葉護可汗 房山 天台圓教 曲女城 宗喀巴
日蓮宗中士道 道諦 尼也耶學派
範疇 迴 上士道 自他圓滿 高昌 喻支十過
轉法輪 密教 思溪資福藏 彌勒淨土
真言 趙城金藏 武林藏 維摩詰經玄義
勝義無畏 十二因緣徑山藏 大乘 華嚴經想蘊
商羯羅主 下士道 龍藏 圓滿身 藏 智者 正理經
分別識 慧可 毗盧藏 唯識普寧藏 法稱 相分
教判 善知識 契丹藏 淨土宗 石經題記
開寶藏 出川 信心銘 四記問
阿賴耶識 明北藏 禪宗密宗 格義 東山法門
金光明經玄義 三士法緣起藏 經 弘法藏 十誦 僧璨
中國佛教史 藏 經 明南藏 佛敎史
常行三昧 崇寧萬壽藏 煩惱論 佛敎史
華嚴法界觀 思溪圓覺藏 陳那 眞提
常坐三昧 般若波羅密多 空有二宗 菩提心
因明天疏 大方廣佛華嚴經 空有二宗 菩提心
大方便廣佛華嚴經 菩提達摩 麴文泰 四大部經記
戒日王 六祖壇經
瑜伽師地論攝抉擇分



Co-word analysis of published literatures

- Has been shown to be effective in mapping the intellectual structure of disciplines
- Mostly utilized in the domains of sciences and technologies
- Alternative to co-authorship or citation networks

Research procedures

- 1. Extracted author assigned keywords or subject headings from the literatures
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Successful community detection criteria

- Quantitative criteria
 - The quality of classification, as measured by modularity
 - Appropriate number of classes
 - Avoid dominant classes, (i.e. large variance in the size of the communities)
- Qualitative criteria
 - The interpretability of the modularity classes/communities

Network parameters for filtering

- Nodes
 - Low frequency/degree terms
 - Nodes with low discriminative value
 - High frequency terms that have low clustering coefficient, an indication of lacking discrimination value, greater likelihood of being involved in multiple communities.
- Edges
 - Trivial linkages (i.e. low edge weights)

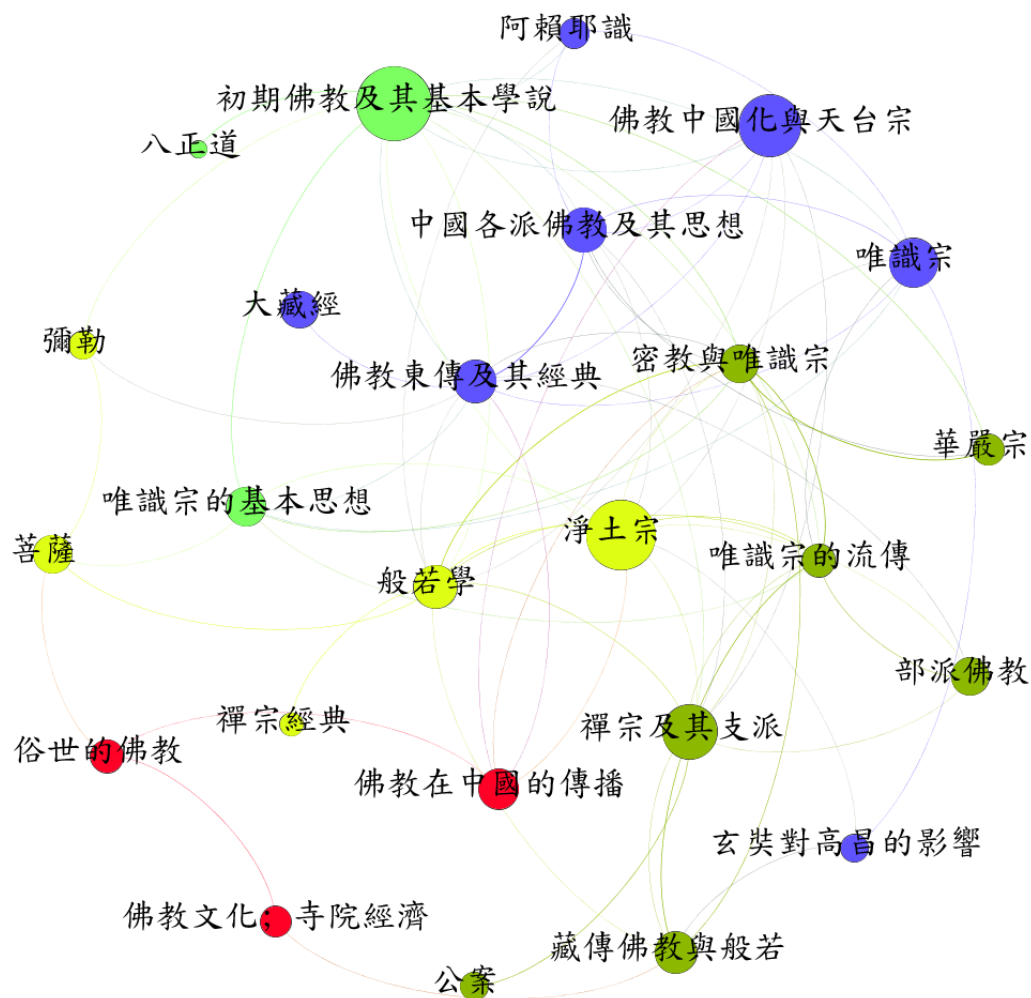
Network parameters for filtering

- Nodes
 - Low frequency terms
 - Nodes with low discriminative value
 - High frequency terms that have low clustering coefficient, an indication of lacking discrimination value, greater likelihood of being involved in multiple communities.
- Edges
 - Frivolous linkages (i.e. low edge weights)

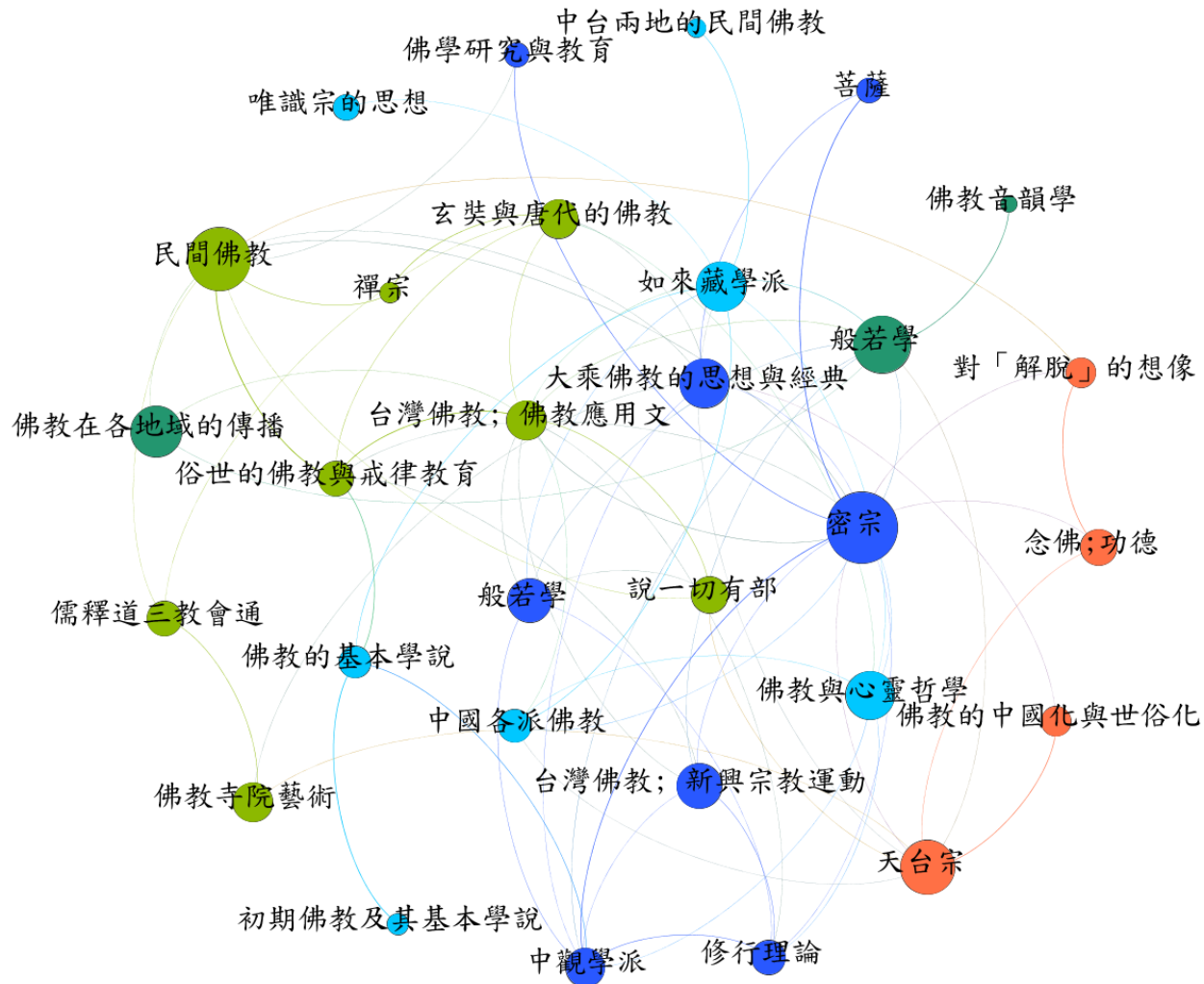
Node aggregation

- Treating each modularity class as a node
 - Aggregating all nodes into a modularity class
- Node size
 - The sum of the term frequency of all the terms within a class
- Edge weight
 - The sum of edge weight of individual nodes between two classes, normalized by multiplying their sizes

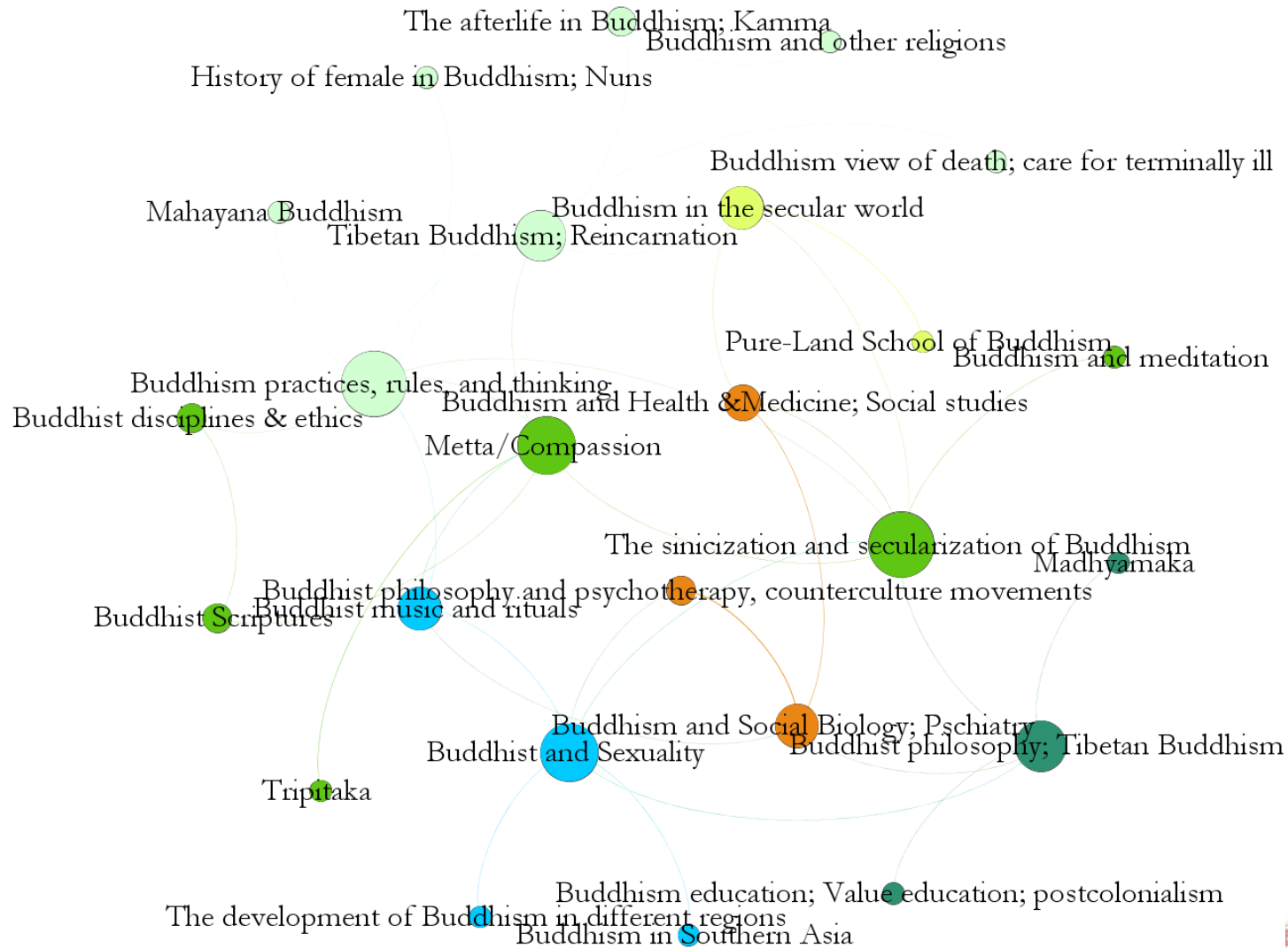
Ch1957-1986



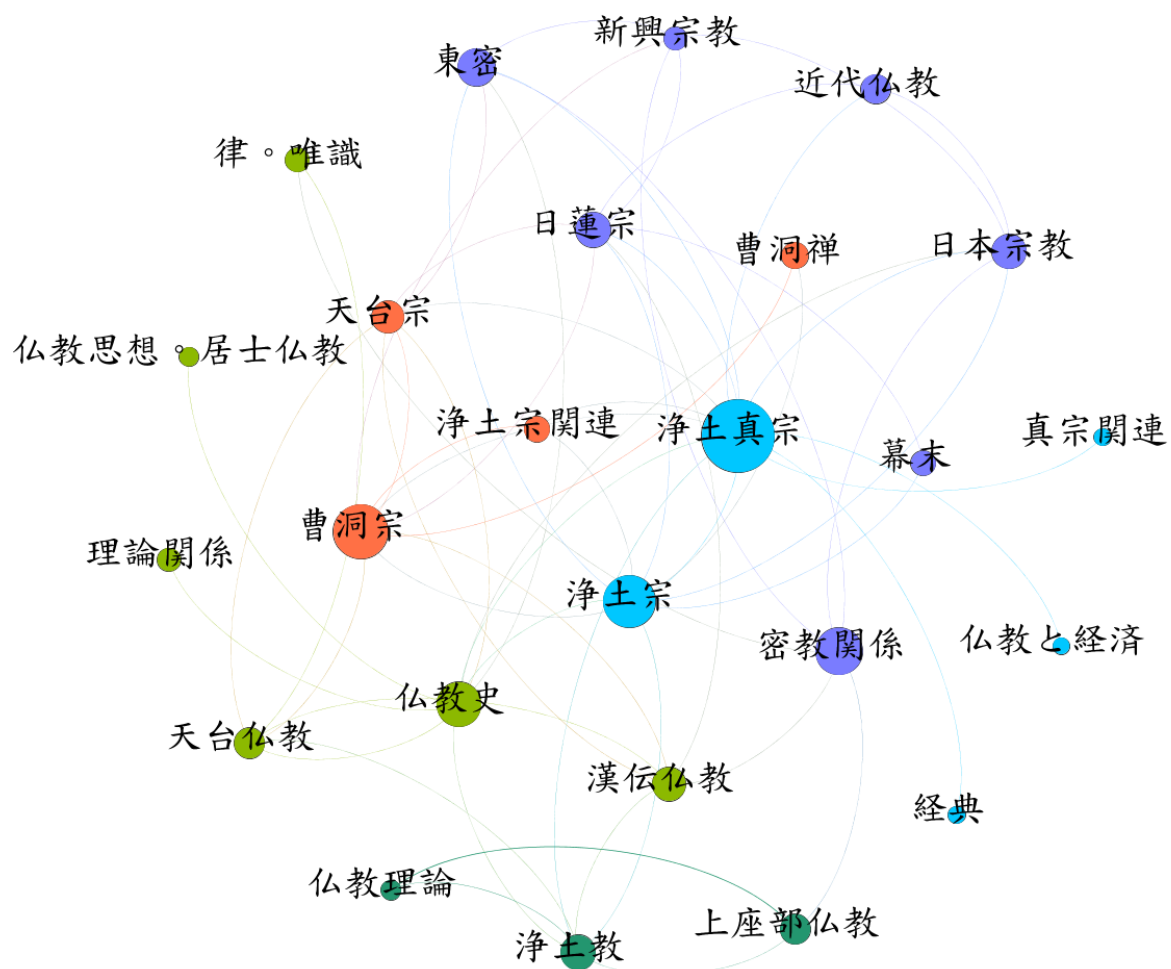
Ch1987-2016



En1987-2016



Jp1987-2016



Research procedures

- 1. Extracted author assigned keywords or subject headings from the literatures
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 - Perform filtering
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 - Extract significant terms in each modularity class for labeling
 - Expert feedback on the quality of classification
- 4. Interpretation of regional differences, the interaction and evolution of these topics

Lessons learned

- In collaboration with faculty
- Serving niche market
- Crowdsourcing