



Analysis of Austria – China Co-publications 2013–2018

Executive Summary
of the **Final Report** (in German)

by
Lampert, Dietmar / Philipp, Stefan / Otter, Markus

supported by
Demir, Utku

March 2020, Vienna, Austria

Study commissioned by the
Austrian Federal Ministry of Education, Science and Research (BMBWF)

 **Bundesministerium**
Bildung, Wissenschaft
und Forschung



This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/).

How to cite this executive summary:

Lampert, Dietmar, Stefan Philipp, and Markus Otter (2020): Kopublikationsanalyse Österreich-China 2013-2018 (Endbericht). DOI: [10.5281/zenodo.3758157](https://doi.org/10.5281/zenodo.3758157)

Executive Summary

The present study aims at analysing scientific works jointly co-authored by Austrian and Chinese organisations between 2013 and 2018. The analysis is based on data gathered from the global citation database *Web of Science*.

The methodological steps are composed of the extraction of the required data, the processing and normalisation of the data, the categorisation of each publication, and finally the analysis of the data. The categorisation is based on the *Science-Metrix Ontology*¹ which consists of three topic classification levels: *Domain*, *Field*, and *Sub-field*. The analysis, and hence this report, covers absolute values, developments over time, collaboration patterns in research topics, the most visibly involved institutions, and visualisations of select aspects.

The most significant results of the study are as follows:

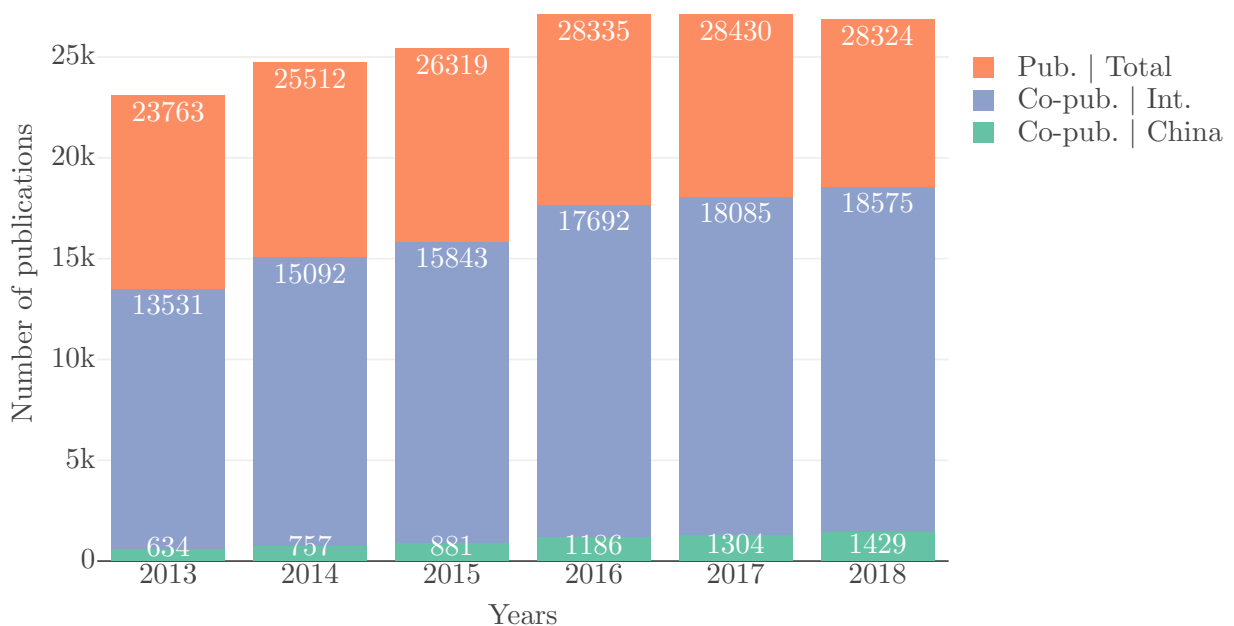


Fig. 1: Consolidated presentation of Austrian publications, international co-publications and co-publications with Chinese organisations between 2013 and 2018

Overall Numbers Austria's overall number of scientific publications increased from $\sim 23k$ in 2013 to $\sim 28k$ in 2018 (cf. *Fig. 1*). In the same time period, the share of international co-publications of the overall publications increased by nine percentage points, namely from $\sim 56\%$ to $\sim 65\%$. In terms of relative growth (2018 vs. 2013), Austria's overall publication grew by factor $\sim 1,2$ and its international co-publications by factor $\sim 1,4$ (cf. *Fig. 2*), whereas the Austria–China co-publications grew by factor 2,25. This means that the Austria–China co-publications more than doubled between 2013 (~ 630) and 2018 (~ 1430). The share of Austria–China co-publications of Austria's international co-publications overall amounted to roughly 8% in 2018, compared to only $\sim 4\%$ in 2013.

¹Science-Metrix is a Canadian research evaluation firm that created an ontology for the classification of topics via journals. Their ontology can be downloaded here: <https://www.science-metrix.com/?q=en/classification>

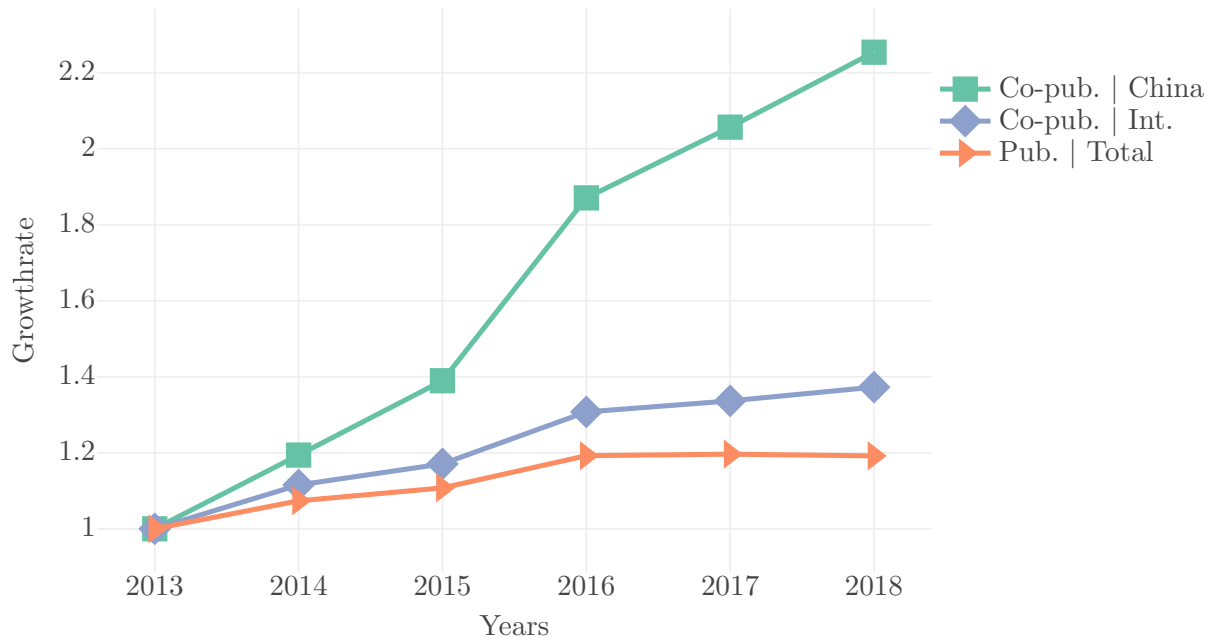


Fig. 2: Relative growth of Austrian publications, international co-publications, and co-publications with Chinese organisations

Research Fields The most prominent *Domain* in the co-publications between Austria and China is *Natural Sciences*, the most visible *Field* – in *Natural Sciences* and overall – is *Physics & Astronomy* (cf. Fig. 3).

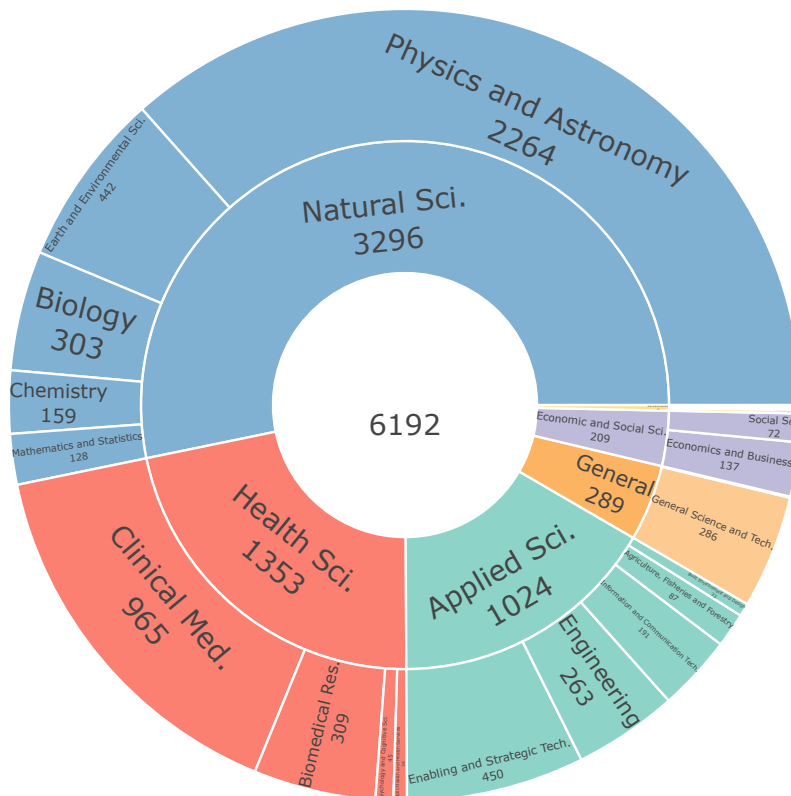


Fig. 3: Distribution of the *Science-Metrix Domains* and *Fields* in Austria–China co-publications

Nearly 53 % of all Austria–China co-publications (2013–2018) belong to *Natural Sciences*. The share of *Health Sciences* and *Applied Sciences* is considerably lower ($\sim 22\%$ and $\sim 17\%$, respectively). *Clinical Medicine* shows strong presence in *Health Sciences* and is the second most visible *Field* overall. *Enabling & Strategic Technologies* (*Applied Sciences*) occupies the third place in the list of most visible *Fields* of Austria–China co-publications. Whereas *Astronomy & Physics* continues to growth steadily and occupies the most visible spot since 2003, *Earth & Environmental Sciences*, *Enabling & Strategic Technologies*, *Biomedical Research*, and *Engineering* show a more dynamic growth.

Institutions As expected, given the above-mentioned distribution of topics, the organisations involved in *Astronomy & Physics* (cf. Fig. 4) are the most visible partner organisations, in terms of co-publications. As regards the involved Chinese organisations, the Chinese Academy of Sciences, the Institute of High Energy Physics, the Peking University, and the University of Science & Technology of China belong to that group; as regards involved Austrian organisations, the TU Wien (formerly the *Vienna University of Technology*), the University of Innsbruck, and the Austrian Academy of Sciences are most visible. The University of Vienna follows these three with a thematically more diverse portfolio that includes *Fields* such as *General Science & Technology* (reflecting multi- or interdisciplinary co-publications), *Earth & Environmental Sciences*, or *Physics & Astronomy*. In *Health Sciences*, the Medical University of Vienna shows the highest number of co-publications, predominantly in *Clinical Medicine* and *Biomedical Research*.

Austrian Org.	# Co-pub.	# Co-pub	Chinese Org.
Vienna University of Technology	1340	2676	Chinese Academy of Sciences
University of Innsbruck	1223	1386	Institute of High Energy Physics
Austrian Academy of Sciences	1119	930	Peking University
University of Vienna	673	833	University of Science and Technology of China
Medical University of Vienna	454	772	Shanghai Jiao Tong University
International Institute for Applied Systems Analysis	266	719	Nanjing University
Medical University of Graz	211	714	Sun Yat-sen University
University of Graz	211	675	Shandong University
Medical University of Innsbruck	187	668	Tsinghua University
Graz University of Technology	158	440	Beihang University

Fig. 4: Most visible organisations in the co-publications between Austria and China

Full Report

The full report (in German) is accessible at <https://doi.org/10.5281/zenodo.3758148>.