



NARODOWA AGENCJA
WYMIANY AKADEMICKIEJ

ACADEMIC COOPERATION
BETWEEN POLAND AND ISRAEL



opracowanie

Warsaw 2022

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INTRODUCTION

The aim of this study is to present a picture of academic cooperation between Poland and Israel and the intensity of student exchange.

The study is exploratory as well as practical and answers the following questions:

- What is the volume of publications by Polish and Israeli co-authors?
- What thematic fields prevail in this regard?
- How intense has this cooperation been over the years?
- What higher education institutions in Poland cooperate with their Israeli counterparts most intensely?
- Which Polish universities host the greatest number of students from Israel?

The study is addressed to the broadly understood academic community and the environment of higher education and scientific institutions as well as to Poland's policy-makers with regard to international academic cooperation.

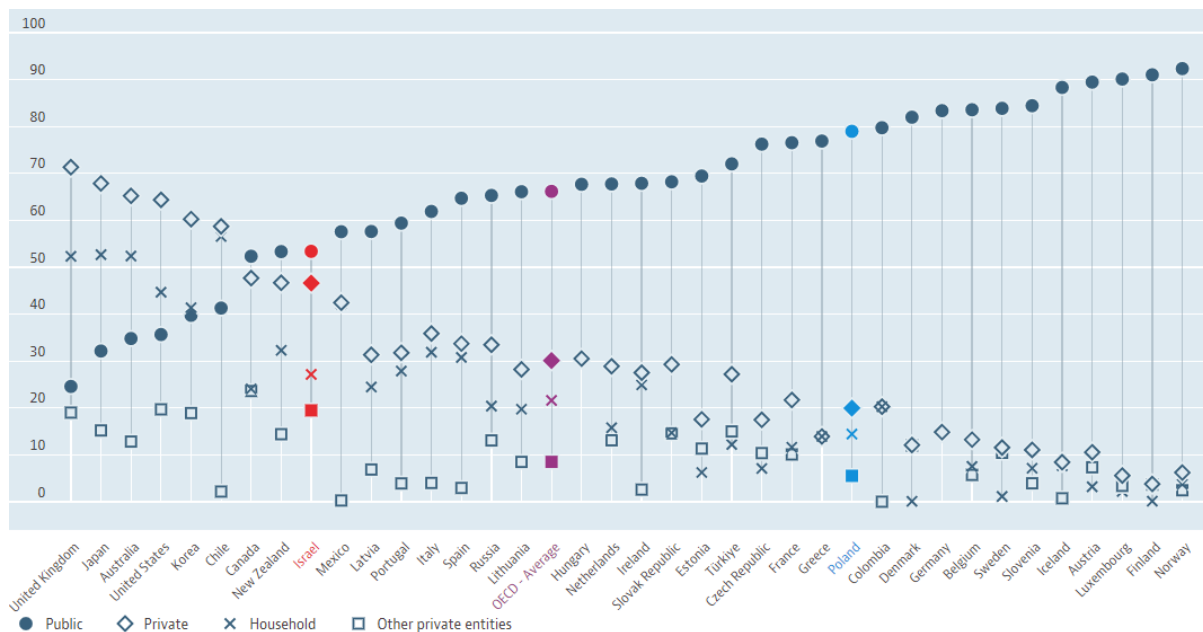
Data from the following databases was used in writing this study: SCOPUS¹, OECD, and POLon.

¹ Access to the SCOPUS database and the SciVal tool under a national licence provided by the Ministry of Education and Science

1 POLAND AND ISRAEL – BASIC DATA

Below are graphs demonstrating the percentage distribution of higher education expenditure categories and the share of persons with higher education by age group, across OECD countries.

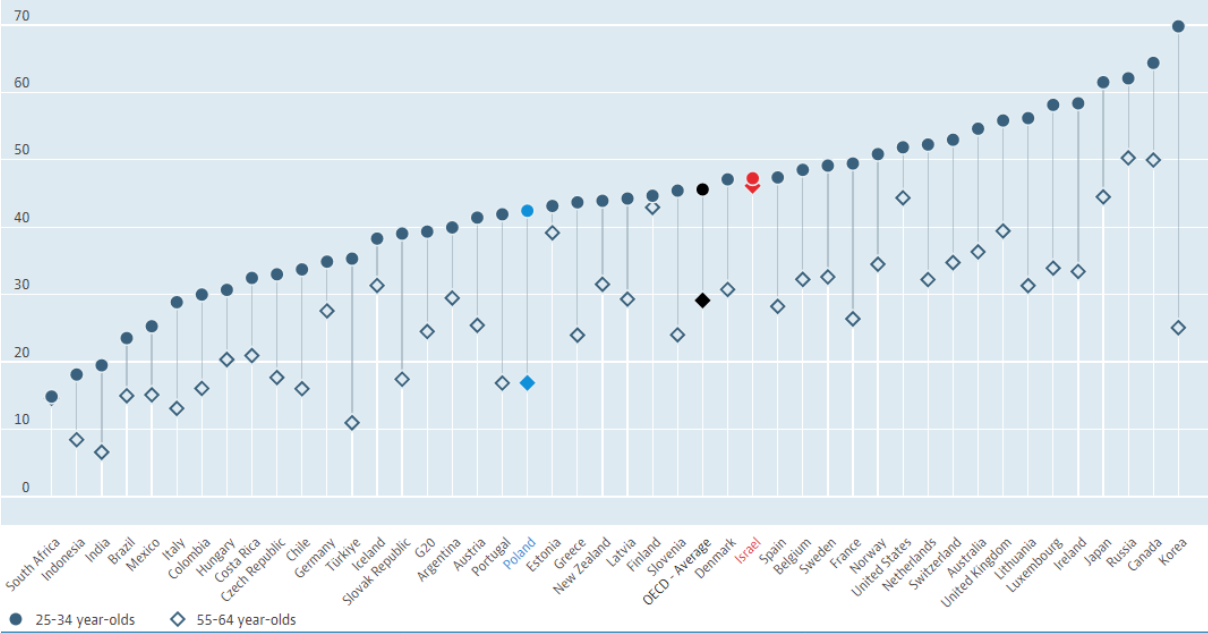
Graph 1: Higher education expenditure (public, private, household, and other) as a % total higher education expenditure (2018)



Source: OECD (2022), *Spending on tertiary education (indicator)*. doi: 10.1787/a3523185-en (Accessed on 27 June 2022)

It is quite clear that in OECD countries, the higher the percentage of public spending on higher education, the lower the share of private funds. This is particularly evident in the Scandinavian countries (Norway and Finland). The countries on the opposite end of the extreme are the United Kingdom and Japan. In terms of the percentage of higher education expenditure, Israel and Poland are at opposites poles to the OECD average. It has to be noted, however, that the level of this expenditure is significantly lower in Poland compared to both Israel and OECD countries.

Graph 2: Percentage of people with higher education by age group (2020)



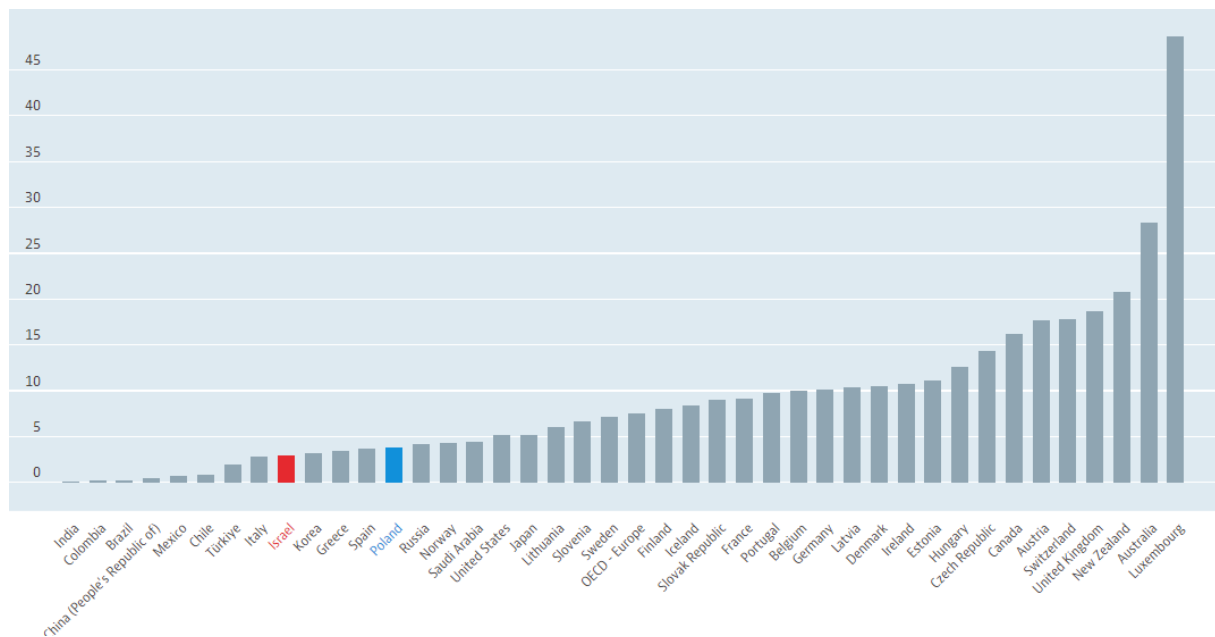
Source: OECD (2022), Population with tertiary education (indicator). doi: 10.1787/0b8f90e9-en (Accessed on 28 June 2022)

The population with higher education degree is defined by the OECD as those who have completed the highest level of education in the relevant age groups. Included are both theoretical programmes leading to advanced research or high-skilled occupations such as medicine, as well as more vocational programmes, upon completion of which a graduate goes straight into employment. The OECD takes the view that, as globalisation and technological developments continue, the needs of labour markets around the world are changing and there is an increasing demand for people with both broad knowledge and specialised skills.

Across all OECD countries, the number of people with higher education is clearly higher among the population aged 25–34 in comparison to the group aged 55–64. The distances between the percentage levels vary, of course, but of note is the virtually equal level of higher education in the younger and older groups in Finland, Israel, and Estonia. South Africa is an exception, with equal shares of people with higher education in both age groups, albeit the country has the lowest total percentage of people with higher education among OECD countries.

As regards Israel, as already mentioned, the percentage of people with higher education in both age groups is higher than the average for OECD countries (reaching 40% in both age groups). In Poland, the proportion of people with higher education is clearly lower in both age groups and the gap between younger and older people is greater than in Israel.

Graph 3: Student mobility indicator (2019)



Source: OECD (2022), "International student mobility" (indicator), <https://doi.org/10.1787/4bcf6fc3-en> (accessed on 27 June 2022).

The international student mobility indicator used in OECD reports shows the number of hosted international university students as a percentage of all university students hosted in the destination (host) country. Foreign students are those who previously gained education in another country and are not resident in the country where they are currently studying.

The highest proportion of foreign students is in Luxembourg (more than 45% of all students in this country are foreigners). The average for OECD countries is 7.5%. The percentage of foreign students in both Poland and Israel is below this average (3.9% and 3.0%, respectively).

According to data from the POLon system, 237 Israelis studied at 37 Polish universities in the academic year 2021/22. They studied mainly in large academic centres, at universities with various educational profiles. Most of the 237 foreigners were enrolled at medical universities in Katowice, Warsaw, and Olsztyn.

In total, the most popular programme among the Israelis was medicine (195 persons).

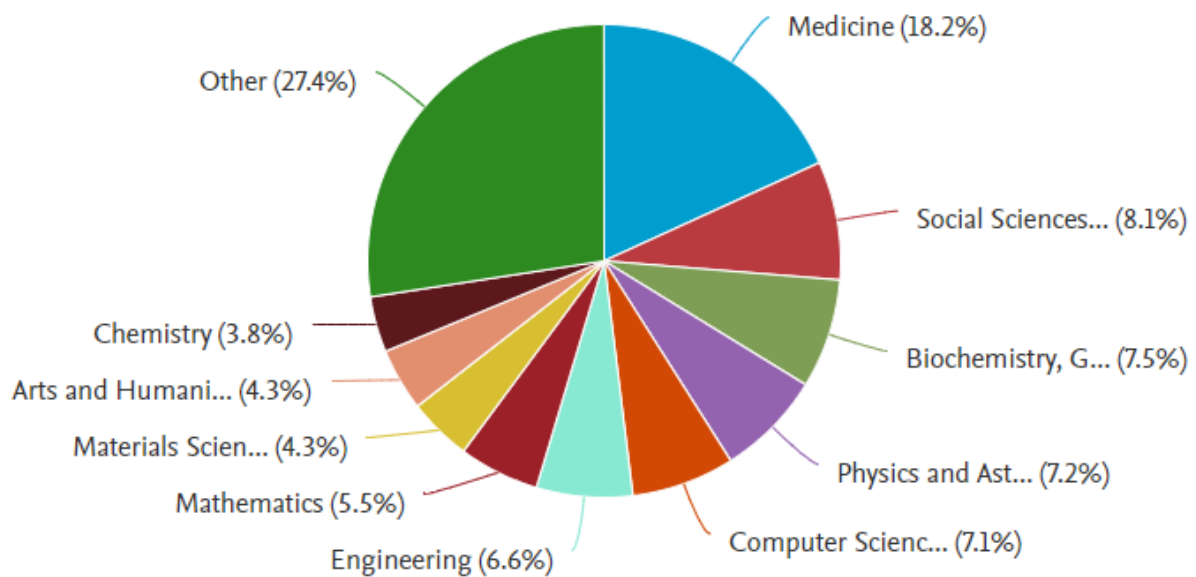
In this period, six academic researchers from Israel were employed at Polish universities.

2 POLISH-ISRAELI SCIENTIFIC COOPERATION (2019–2021)

In terms of the number of publications in OECD countries, the leaders are the United States, the United Kingdom, and Germany.

The highest percentage of publications in indexed sources in the SCOPUS database in OECD countries was in the field of natural science (53.4%), and one in four in engineering and technologies (25.1%).

Graph 4: Publications by Israeli scientists by field of knowledge



Source: SCOPUS-SciVal [accessed: 28/06/2022]

Israeli scientists publish most extensively in the fields of Medicine, Social Science, and Biochemistry, Genetics and Molecular Biology. The three most productive universities are: Tel Aviv University, Hebrew University of Jerusalem, and Ben-Gurion University of the Negev.

Map 1: Regions of residence of co-authors of publications by Israeli scientists



Source: SCOPUS-SciVal [accessed: 28/06/2022]

The largest number of publication co-authors come from the Asia-Pacific region (mainly from China, Australia, and India), Africa (Egypt, South Africa, and Morocco), and Europe (Germany, UK, and Italy).

As for Poland, more than 140 institutions (141) collaborated with Israeli science and higher education institutions on publications between 2019 and 2021. Joint publications were most often in the fields of natural science and medical science.

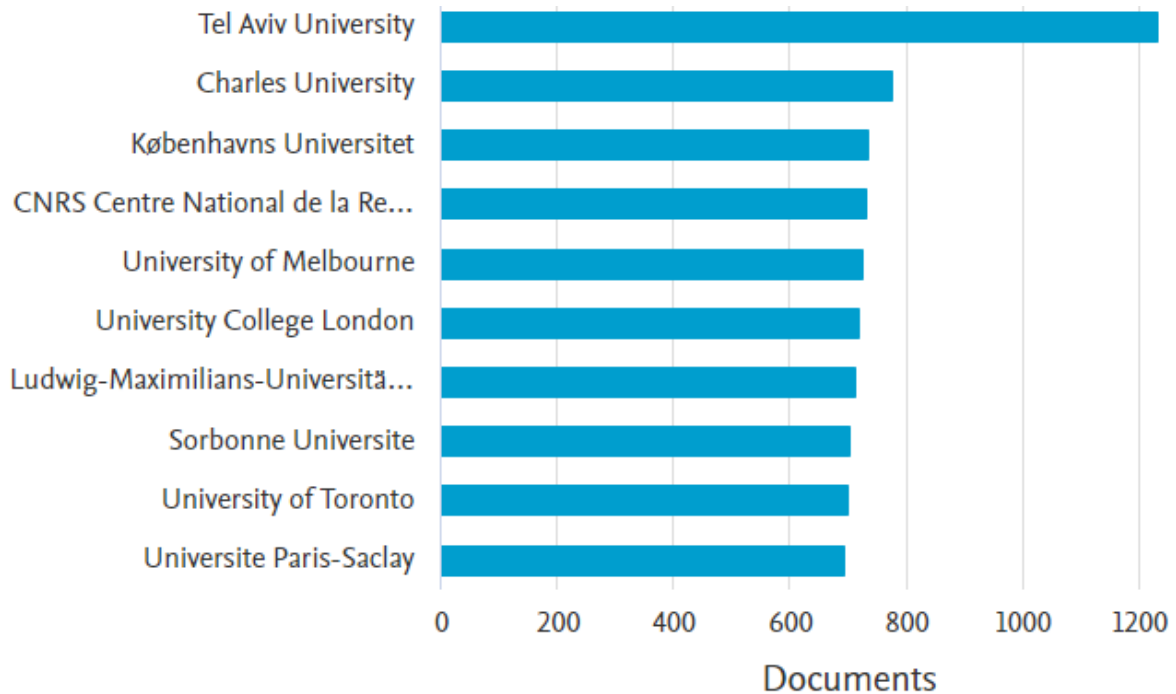
Table 1: Polish-Israeli publications in the SCOPUS database

Publication year	Number of publications
2022	291
2021	740
2020	618
2019	531
2018	571
2017	475
Total:	3,226

Source: SCOPUS-SciVal [accessed: 28/06/2022]

Between 2017 and 2022, 3,226 joint publications appeared where at least one author was affiliated simultaneously with a Polish and an Israeli institution.

Graph 5: Authors' affiliations



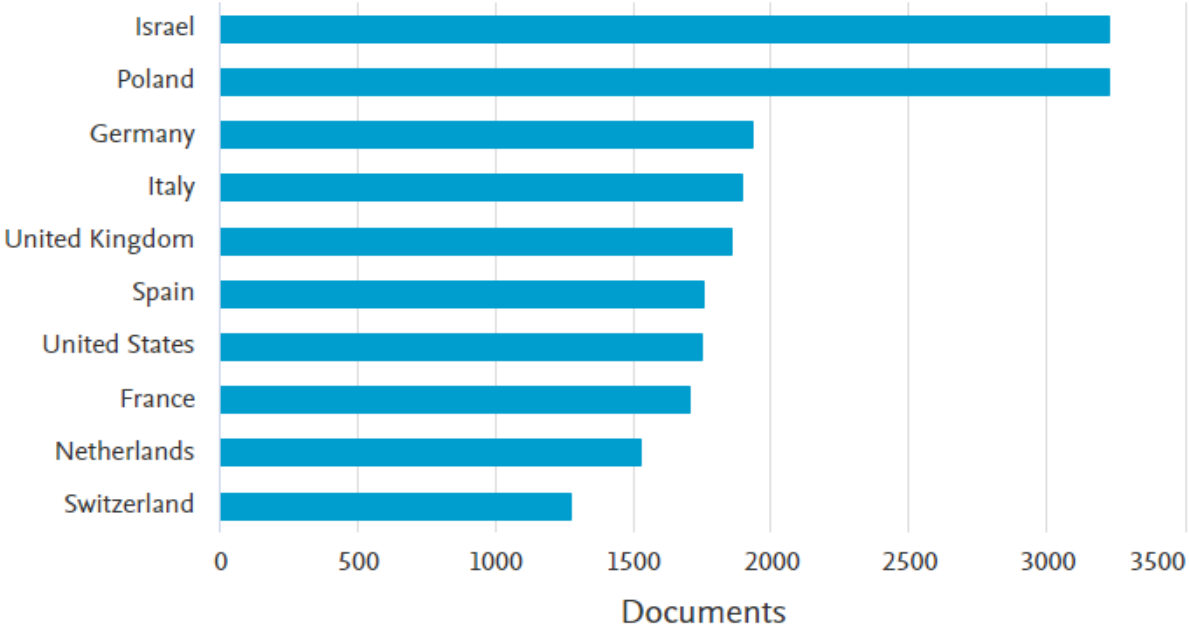
Source: SCOPUS-SciVal [accessed: 28/06/2022]

The institutions with most affiliated co-authors are:

- Tel Aviv University (1231 publications),
- Charles University (776),
- Københavns Universitet (735),
- CNRS Centre National de la Recherche Scientifique (731),
- University of Melbourne (724),
- University College London (718),
- Ludwig-Maximilians-Universität München (712),
- Sorbonne Universite (703),
- University of Toronto (701),
- Universite Paris-Saclay (694),
- University of Sydney (679),
- University of Cambridge (678),
- Ethnikó ke Kapodistriakó Panepistímio Athinón (673).

The first of the Polish universities on the list is the Jagiellonian University (628).

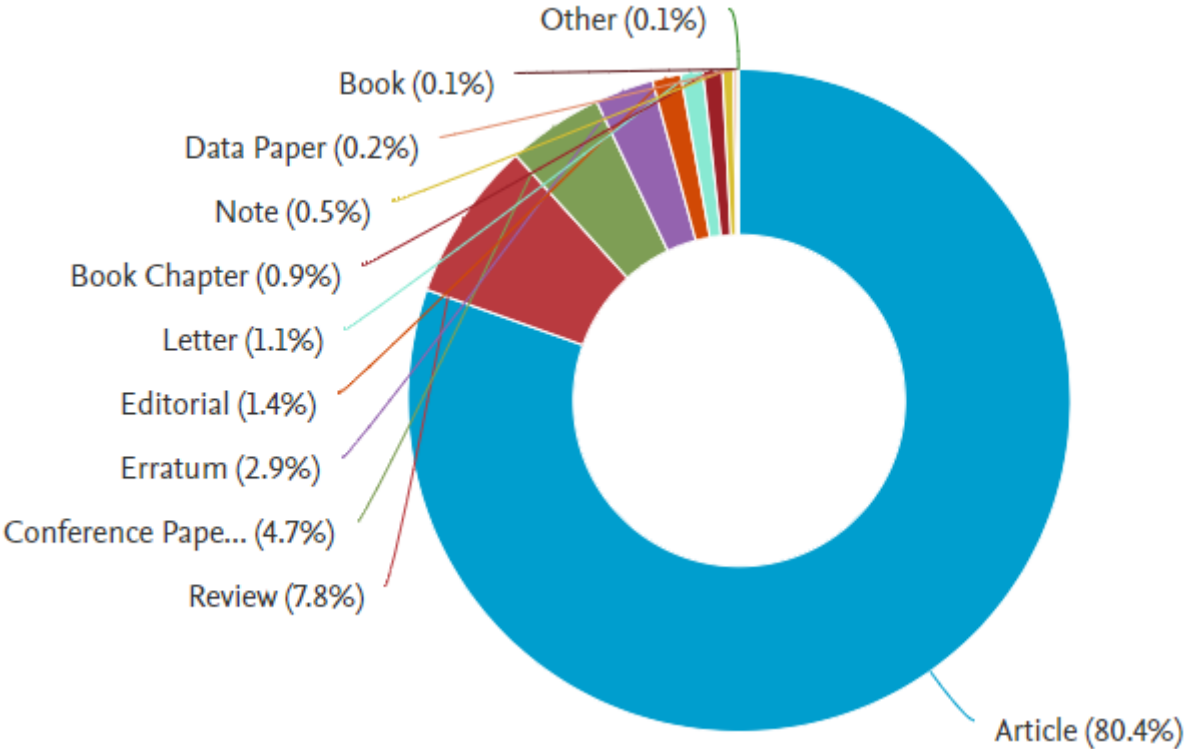
Graph 6: Countries of origin of co-authors of publications



Source: SCOPUS-SciVal [accessed: 28/06/2022]

In addition to Poles and Israelis, the publications are co-authored by Germans, Italians, and British. In addition to the 15 countries shown in the chart, there are some states that are more exotic from the Polish perspective, e.g. Sri Lanka, Panama, or the Federated States of Micronesia.

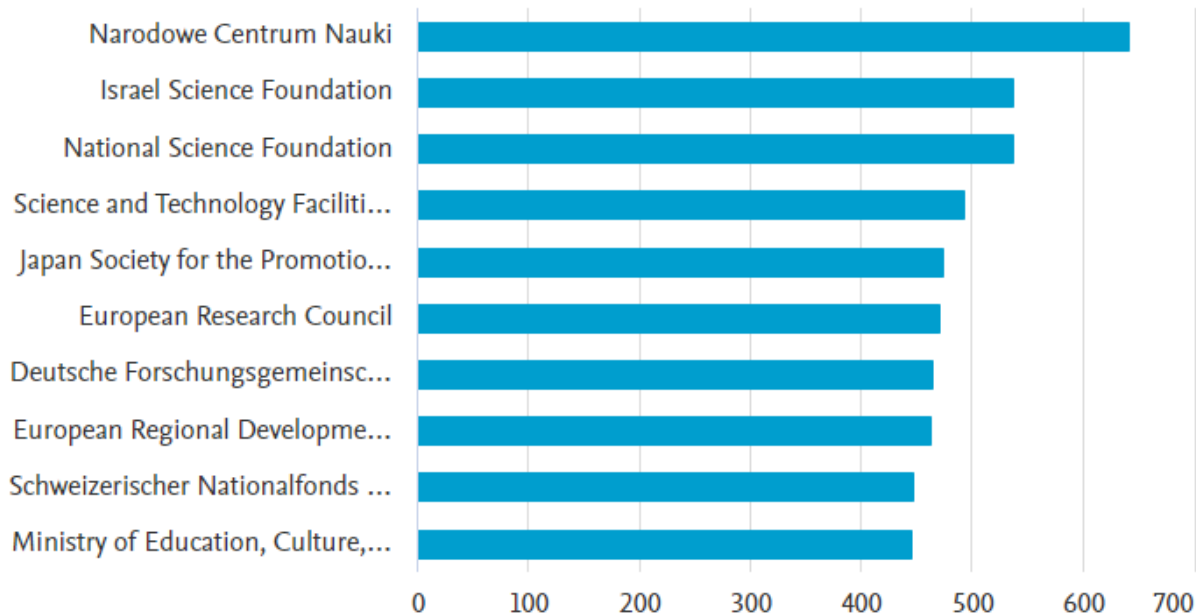
Graph 7: Publications by type of document



Source: SCOPUS-SciVal [accessed: 28/06/2022]

The main types of joint publications are articles (80.4%), reviews (7.8%), and conference proceedings (4.7%). Two joint books in business, economic science, and social science were published. In addition, there were 30 co-authored book chapters. The subject fields varied – from mathematics and engineering, through social science, to chemistry.

Graph 8: Publications by funding institution



Source: SCOPUS-SciVal [accessed: 28/06/2022]

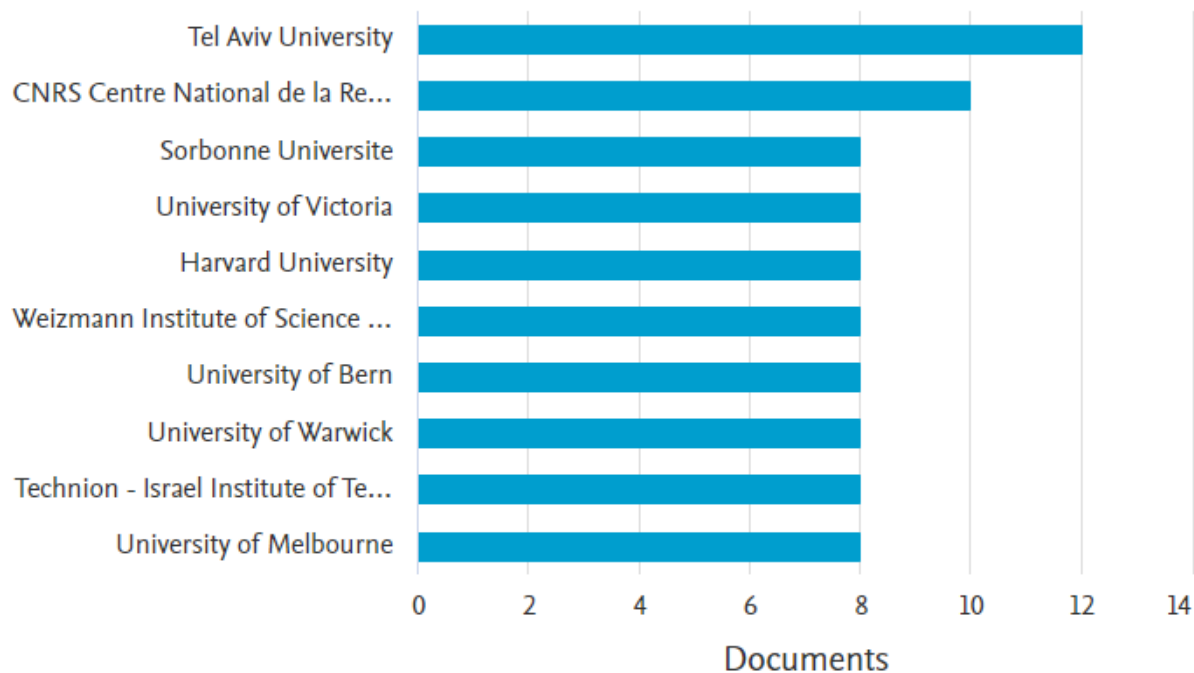
From the point of view of a funding agency offering student and research grants such as NAWA, it is interesting to see what other sources of co-funding for publications were indicated by the authors. The most common were:

- National Science Foundation (538 publications),
- Science and Technology Facilities Council (493),
- Japan Society for the Promotion of Science (474),
- European Research Council (471),
- Deutsche Forschungsgemeinschaft (464),
- European Regional Development Fund (463),
- Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung (447),
- Ministry of Education, Culture, Sports, Science and Technology (445),
- National Natural Science Foundation of China (430),
- Bundesministerium für Bildung und Forschung (426).

3 NAWA'S CONTRIBUTION TO POLISH-ISRAELI SCIENTIFIC COLLABORATION

The Polish National Agency for Academic Exchange has contributed to the funding of 26 publications since its inception (including: 14 publications in 2022, 6 in 2021, and 6 in 2020).

Graph 9: Affiliations of authors of publications co-financed by NAWA

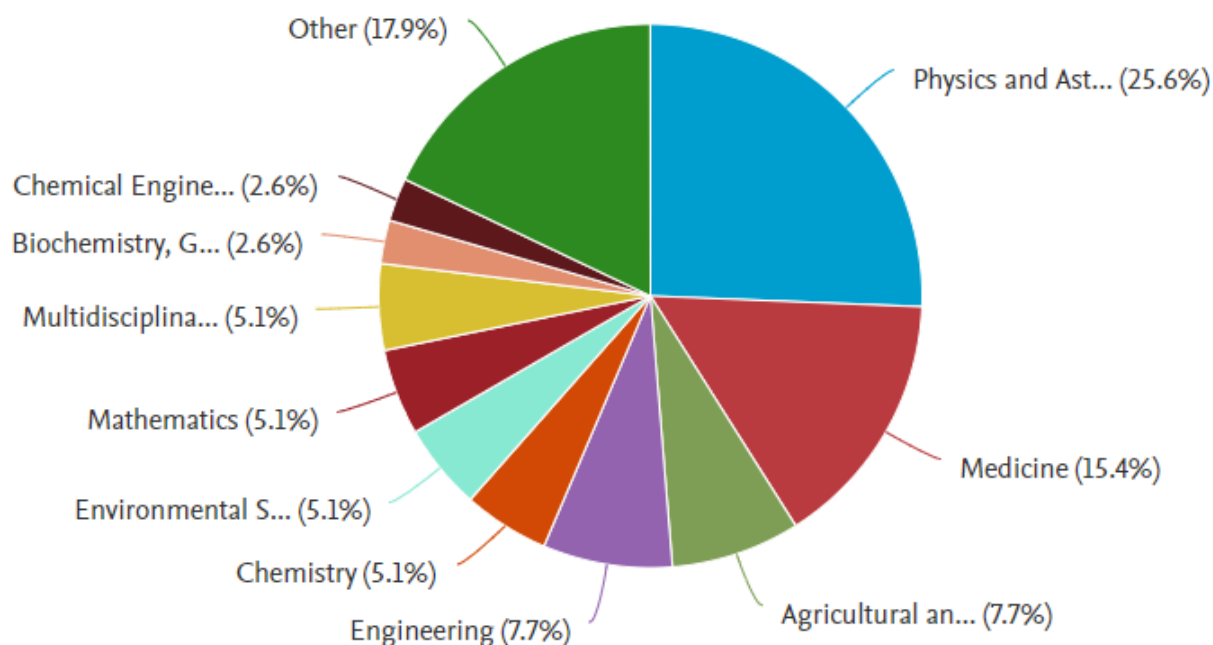


Source: SCOPUS-SciVal [accessed: 28/06/2022]

The co-authors of these publications most often indicated as their Polish affiliation:

- Jagiellonian University (7 publications),
- Henryk Niewodniczanski Institute of Nuclear Physics of the Polish Academy of Sciences (7)
- AGH University of Science and Technology (6).

Graph 10: Publications co-financed by NAWA by subject field



Source: SCOPUS-SciVal [accessed: 28/06/2022]

Publications co-financed by NAWA concerned the following fields:

- Physics and Astronomy (10 publications),
- Medicine (6),
- Agricultural and Biological Sciences (3),
- Engineering (3),
- two publications each in the fields of: Chemistry, Environmental Science, Mathematics, Multidisciplinary,
- one publication each in the fields of: Biochemistry; Genetics and Molecular Biology; Chemical Engineering; Computer Science; Earth and Planetary Sciences; Materials Science; Neuroscience, Pharmacology, Toxicology and Pharmaceutics; Psychology; Social Sciences.

4 CONCLUSIONS

1. In Poland, the largest number of Israelis study in large academic centres, in medical faculties.
2. Most Israeli scientists working in Poland are employed at Adam Mickiewicz University in Poznań.
3. Israeli researchers most often publish in the areas of medical sciences and social sciences.
4. Polish-Israeli co-authorships most often result in publications in the fields of natural sciences and medical sciences.
5. Polish authors are most often affiliated with the Jagiellonian University, while Israeli authors are affiliated with Tel Aviv University.
6. Polish co-authors whose publications have been co-financed by NAWA are most often affiliated with the Jagiellonian University and the AGH University of Science and Technology.

Study prepared by:

Jolanta Buczek, Ph.D. (NAWA)

Publisher:

The Polish National Agency for Academic Exchange

ul. Polna 40

00-643 Warszawa

phone no. (0048) (22) 390 35 00

<https://nawa.gov.pl/en/>

Translated by:

Szkoła dla tłumaczy i biuro tłumaczeń Textem