# Evaluation of Scientific Research Activities of CZU

# for 2020

Czech University of Life Sciences Prague

University full of life

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# 001
# Introduction

# Evaluation of Scientific Research Activities of CZU for 2020

The evaluation of scientific research activities of CZU for 2020 is divided into four areas and includes evaluation of

- research projects;
- doctoral studies;
- qualification growth of academic staff;
- publishing activities.

The funds obtained in 2020 by CZU through external research projects amounted to 462.497 million CZK. If the amount of allocated institutional support is added to the funds obtained through grant agencies, the total amount of CZU funds for science and research in 2020 reached CZK 742,790 million. A total of 211 research projects from domestic and foreign sources were dealt with at CZU in 2020, which represents 31 more projects than in 2019, 38 more projects than in 2018 and 40 more projects than in 2017. Most of the grants in 2020 were handled by the Technology Agency of the Czech Republic (63 projects), the Grant Agency of the Ministry of Health (46 grants) and the Grant Agency of the Czech Republic (29 projects).

The number of students in doctoral study programmes in 2020 increased by 17 students to 1,100 compared to 2019. The number of students studying was 827, which is 31 more than in 2019. If only students studying are included in the number of students per supervisor, the CZU average in the number of students per supervisor is 3.3. If students who have interrupted their studies are included, the CZU average is 4.4. There has been a significant year-on-year reduction in the number of PhD graduates (42 in 2020, 83 in 2019), due to the extension of the study period by half a year as a result of the pandemic.

The number of newly appointed associate professors in 2020 has decreased compared to the previous year. There were 13 newly appointed associate professors, 5 fewer than in 2019. The number of newly appointed professors increased from four to six.

In 2020, CZU Prague staff published a total of 1,026 scientific publications that are registered in the Web of Science and Scopus databases, which is 51 more than in 2019. A total of 919 articles were published in the Web of Science database, which is 128 more than in 2019. In this respect, the productivity of CZU staff has been on an upward trend in recent years. There are even 478 more articles compared to 2014, an increase of 52 percent. In contrast, the number of articles in the Scopus database (107) has decreased by 77 articles year-on-year, and by 109 articles compared to 2018 and by 184 articles less than in 2017.

When evaluating the publication activities according to the AIS (Advanced Impact Score), we can see that the number of articles in D1 has increased by 19 percent to 123 compared to 2019, an increase of a full 64 percent compared to 2017. The number of articles in Q1 has increased by 19 year-on-year and there is a significant increase in the number of articles in Q2 (116 articles). On the other hand, the number of articles in Q4 decreased significantly (by 22).

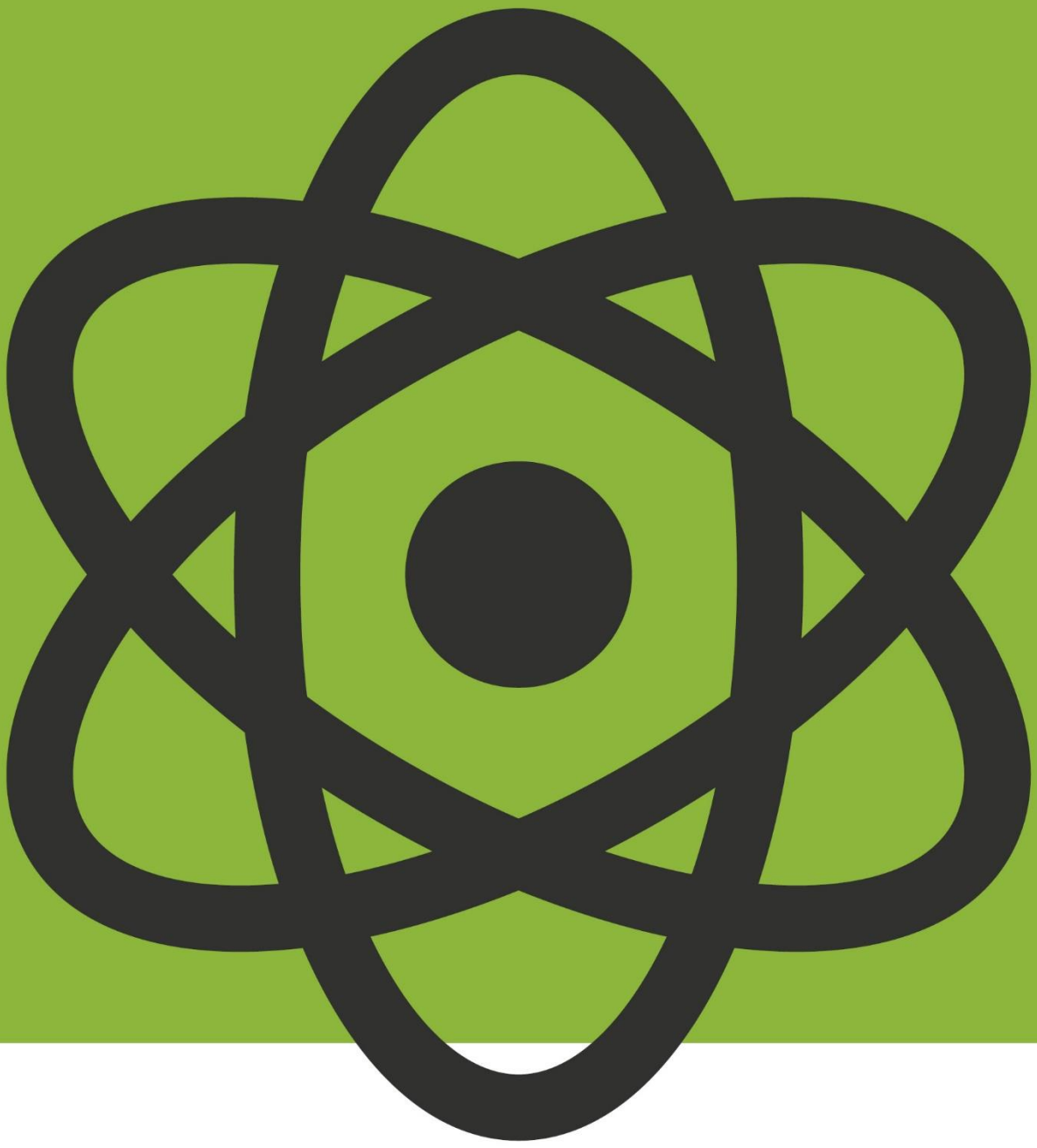
The Czech University of Life Sciences Prague ranked 5th among universities in the Czech Republic in terms of the percentage of articles in Q1 (51.29%) and improved significantly compared to 2019 (7th place, 45.52%), 2018 (11th place, 38.02%) and 2010 (14th place, 28.57%). In 2020, CZU significantly improved its position among Czech universities also in terms of the number of articles in D1 (11.94%, 2nd place). In 2019 and 2018, CZU ranked 5th (9.23%) and 4th (9.78%), respectively, in this parameter. Compared to 2010, however, this is a significant increase, as in that year CZU ranked 17th among Czech universities (6.13%).

In 2020, CZU staff contributed to 15 articles published in Nature Index journals.

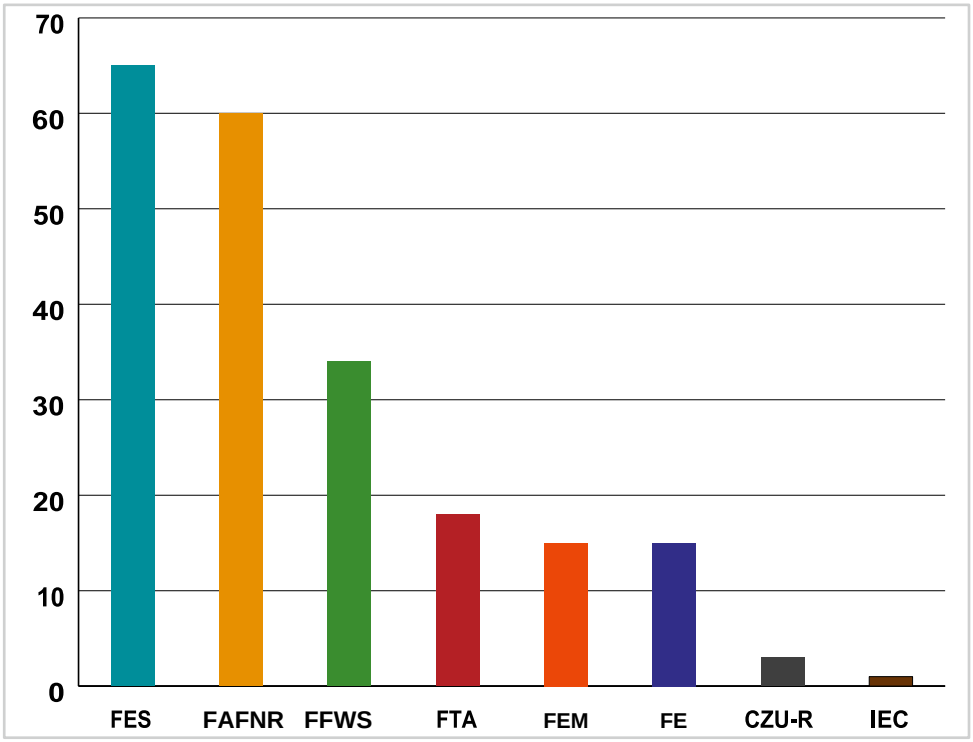
For better orientation, the following graphs show the individual faculties of CZU, the Institute and the Rector's Office distinguished in colour:

**FAFNR – Faculty of Agrobiology, Food and Natural Resources**
**FFWS – Faculty of Forestry and Wood Sciences**
**FTA – Faculty of Tropical AgriSciences**
**FES – Faculty of Environmental Sciences**
**FEM – Faculty of Economics and Management**
**FE – Faculty of Engineering**
**IEC – Institute of Education and Communication**
**CZU-R – Rectorate of the Czech University of Life Sciences Prague**

# 002
# Research Projects



The funds obtained in 2020 by CZU through external research projects amounted to 462.497 million CZK. A total of 211 research projects from domestic and foreign sources were carried out at CZU in 2020, which represents 31 more projects than in 2019, 38 more projects than in 2018 and 40 more projects than in 2017 (projects registered in the CEP and development aid projects are included). The number of projects under way in 2020, broken down by faculty, institute and CZU-R, is shown in Graph 1. Only projects whose funds are accounted for by CZU (meaning they have an assigned contract number) are included in the overview. The breakdown of grants between domestic and foreign projects is shown in Table 1.

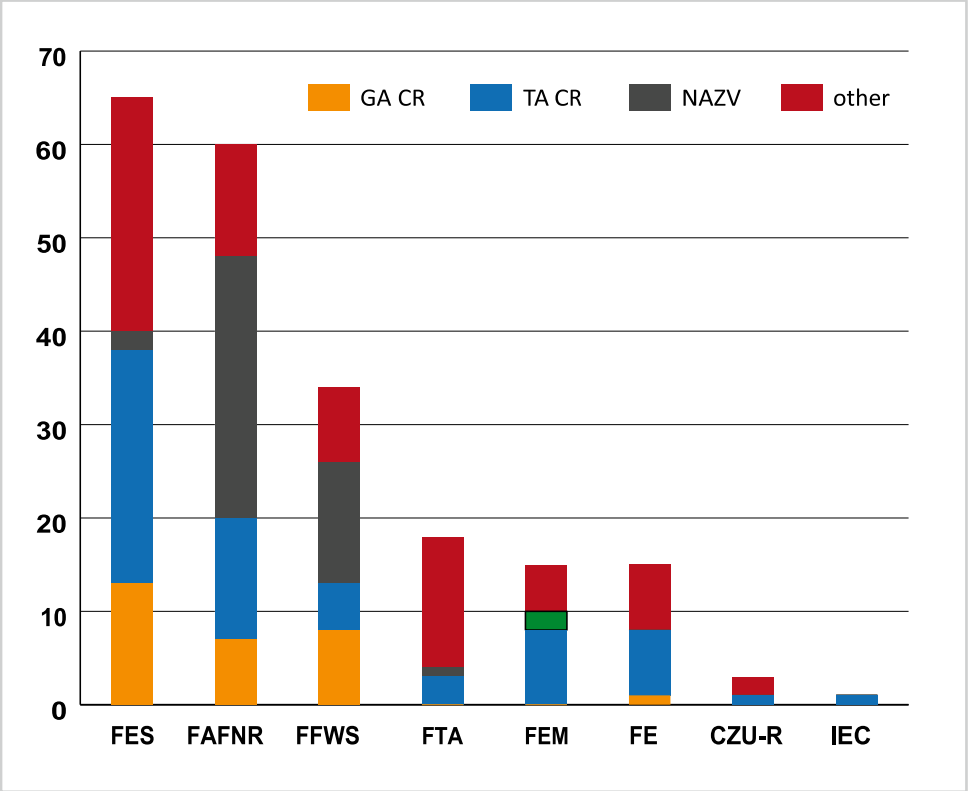



Graph 1. Number of running CZU research projects in 2020 distributed according to faculties.

| Faculty | 2020 | | 2019 | | 2018 | | 2017 | |
|---|---|---|---|---|---|---|---|---|
| | domestic | foreign | domestic | foreign | domestic | foreign | domestic | foreign |
| FAFNR | 56 | 4 | 60 | 5 | 63 | 0 | 64 | 2 |
| FES | 61 | 4 | 49 | 3 | 39 | 2 | 28 | 1 |
| FFWS | 33 | 1 | 26 | 1 | 33 | 0 | 37 | 2 |
| FE | 14 | 1 | 7 | 3 | 16 | 0 | 12 | 0 |
| FEM | 12 | 3 | 15 | 7 | 8 | 3 | 7 | 3 |
| FTA | 12 | 1 | 14 | 3 | 6 | 0 | 7 | 4 |
| CZU-R | 3 | 0 | 2 | 1 | 3 | 0 | 4 | 0 |
| IEC | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 |

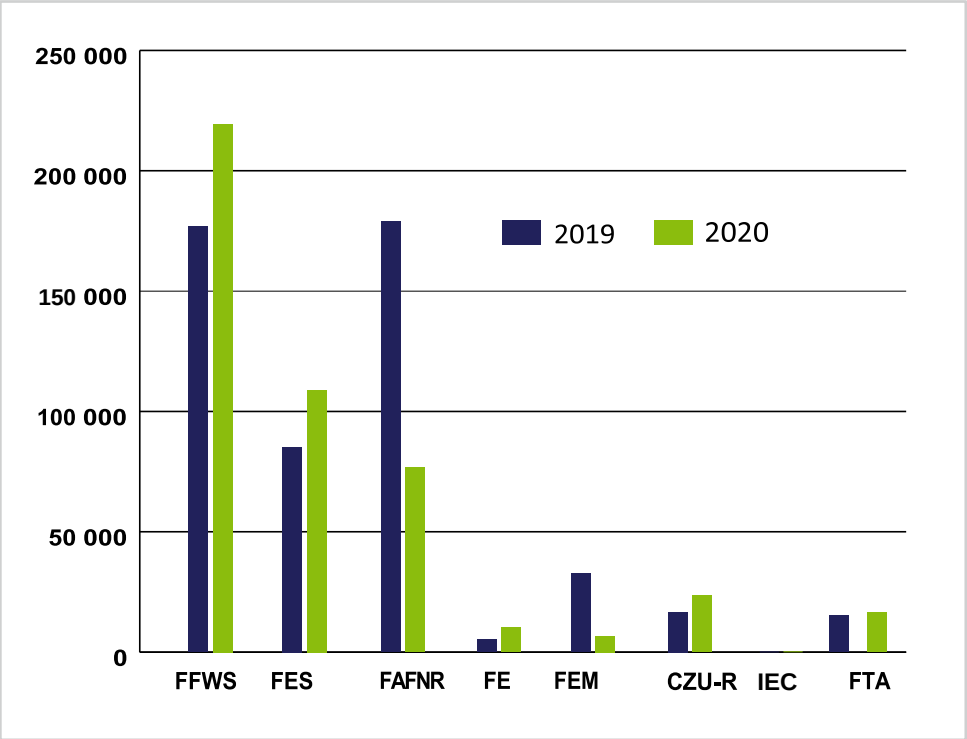
Table 1. Division of domestic and foreign projects in 2020 by CZU faculties and comparison with 2017, 2018 and 2019.

Most of the grants in 2020 were handled within the Technology Agency of the Czech Republic (TA CR - 63 projects), the Grant Agency of the Ministry of Health (NAZV - 46 grants), and the Grant Agency of the Czech Republic (GA CR - 29 projects). The distribution of projects by provider is shown in Graph 2 by individual CZU faculties.




Graph 2. Number of projects handled in 2020 at CZU broken down by main providers.

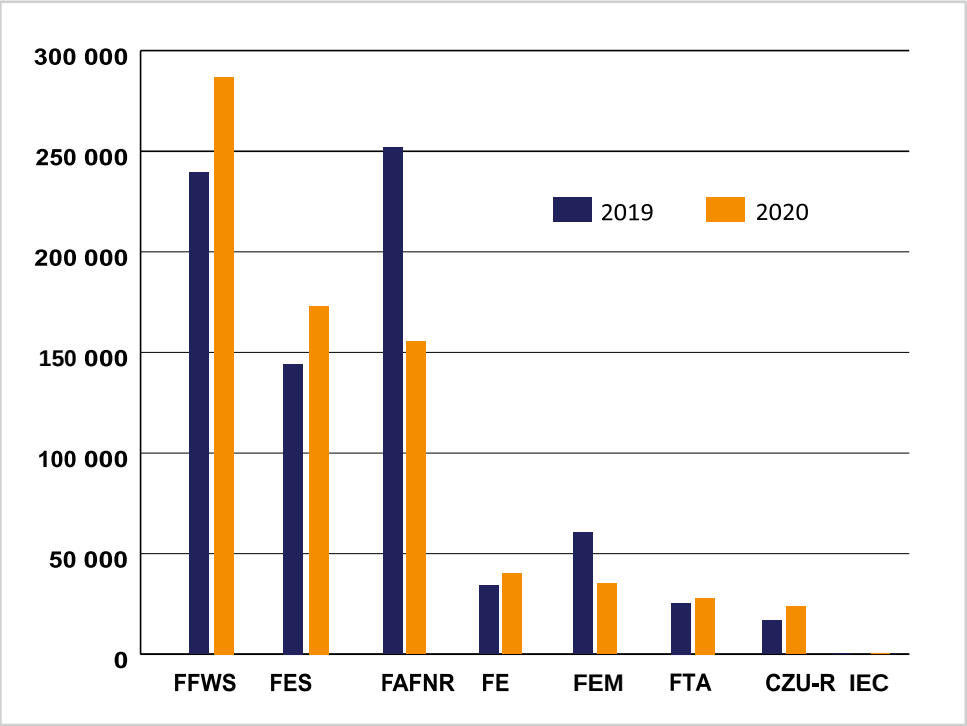
The volume of funds obtained from external projects in 2020 reached 462,497 thousand EUR. This is a slight decrease compared to 2019 (CZK 511,116 thousand). Compared to 2015, the total amount obtained from external projects increased by 192 percent. The amount of funds obtained from research projects in 2019 and broken down by faculty, institute and CZU-R is shown in Graph 3.



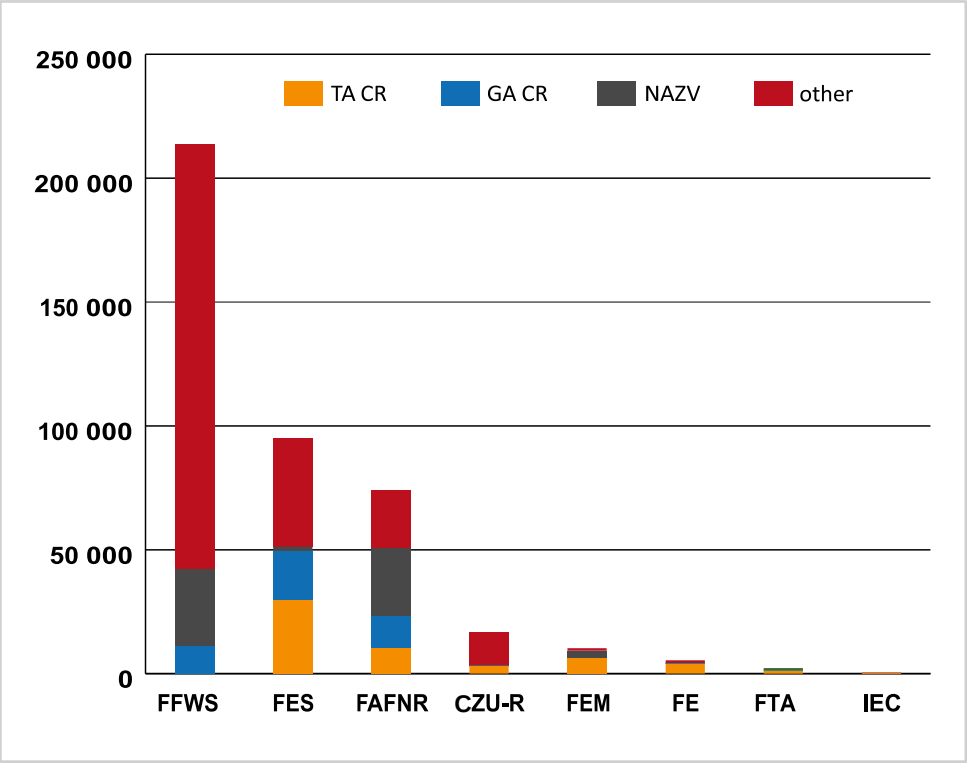

Graph 3. Funds from CZU research projects (in thousands CZK) in 2020 divided by faculties and comparison with 2019.

In Graph 4, for a better idea of the total amount of research funds of individual faculties, the funds from external research projects are presented together with the amount of institutional support for the development of research organisations for the last 5 years, divided according to faculties and CZU-R. Through the institutional support for the development of research organisations in 2020, CZU received 280,293 thousand EUR. This represents a 7% increase compared to 2019 (the amount of funding was CZK 262,072 thousand). Thus, if the amount of allocated institutional support is added to the funds obtained through grant agencies, **the total amount of CZU funding for science and research in 2020 reached CZK 742,790 thousand.**

CZU received the largest amount of funds from operational programmes, i.e., 51 percent of the total number of domestic grants. Other funds came from TA CR (Technology Agency of the Czech Republic, 16%), NAZV (National Agency for Agricultural Research, 15%), GA CR (Grant Agency of the Czech Republic, 10%) and MEYS (Ministry of Education, Youth and Sports, 4%). Additional funds were obtained from grants from the Ministry of the Interior, the Ministry of Industry and Trade and the Ministry of Culture. The amount of funding in the projects received from each domestic grant agency is shown in Graph 5.

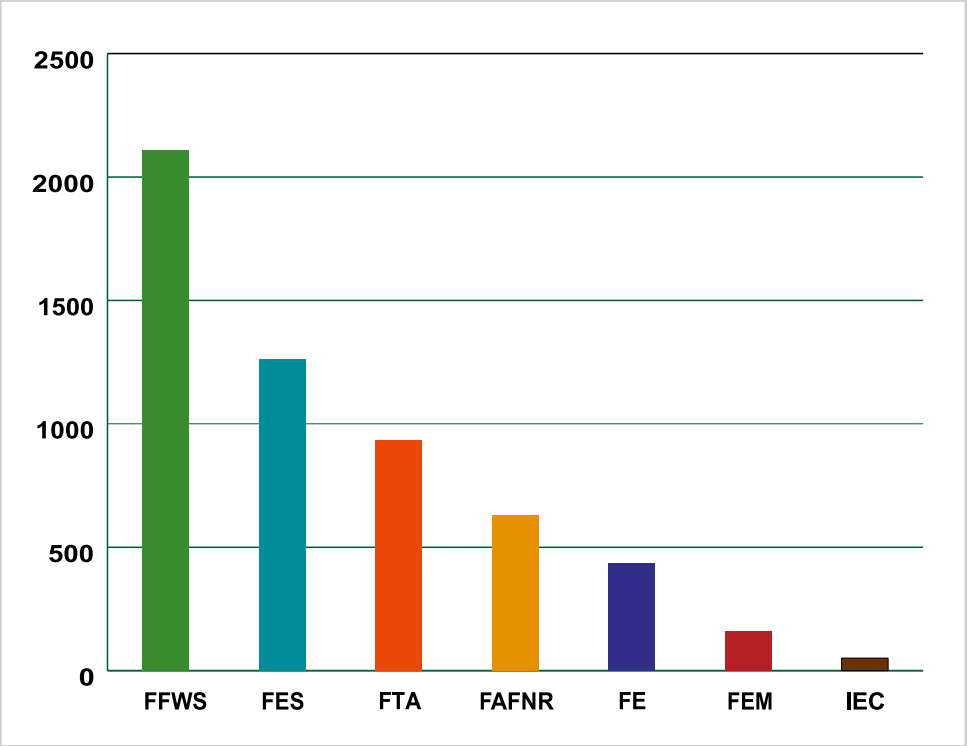



Graph 4. Funds from CZU research projects (in thousands of CZK) in the years 2019-2020 increased by the allocated funds of institutional support divided according to faculties.




Graph 5. Funds from CZU research projects (in thousands of CZK) in 2019 divided according to main providers.

Graph 6 shows the amounts from grant projects in 2020 per academic staff member of each faculty and institute.




Graph 6. Grant funds (in thousands of CZK) received in 2020, calculated per academic staff member of individual faculties, including institutional support.

# 003

# Doctoral Study Programme Students

The number of students in doctoral study programmes (DSP) in 2020 increased by 17 students compared to 2019 to 1,100 (including students who have interrupted their studies). There were 827 students studying, 31 more than in 2019. The number of DSP students by faculty is shown in Table 2. The numbers of DSP students studying as of 31 December 2020, broken down by faculty and length of study, together with the number of supervisors and the number of students per supervisor (active supervisors, i.e., those with PhD students, are counted), are shown in Table 3. If only active students are included in the number of students per supervisor, the CZU average in the number of students per supervisor is 3.3. If students who have interrupted their studies are included, the CZU average is 4.4.

| Faculty | 2016* | 2017* | 2018* | 2019* | 2020* |
|---|---|---|---|---|---|
| FEM | 125/54 | 113/43 | 128/38 | 134/35 | 135/38 |
| FAFNR | 188/74 | 168/100 | 188/94 | 198/68 | 223/61 |
| FE | 69/19 | 65/26 | 88/27 | 73/28 | 77/23 |
| FES | 156/72 | 163/60 | 155/62 | 154/65 | 166/60 |
| FFWS | 186/38 | 164/43 | 148/65 | 147/61 | 125/64 |
| FTA | 62/31 | 65/34 | 77/32 | 90/30 | 101/27 |
| CZU | 786/288 | 738/306 | 784/318 | 796/287 | 827/273 |

Table 2. Number of DSP students by faculty in 2016-2020.

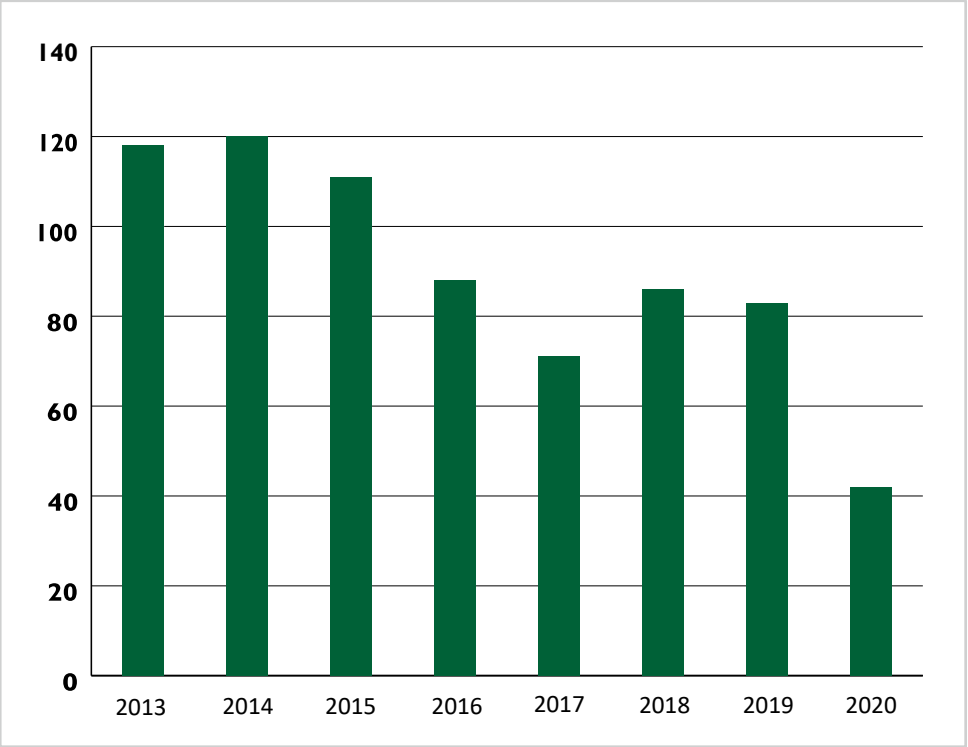


| Faculty | Full-time students | | | | Total | Students per tutor* | | |
|---|---|---|---|---|---|---|---|---|
| | 1st year | 2nd year | 3rd year | 4th year | | ST | IS | all |
| FEM | 34 | 37 | 32 | 32 | 135 | 3.38 | 0.95 | 4.33 |
| FAFNR | 54 | 66 | 51 | 52 | 223 | 3.38 | 0.92 | 4.30 |
| FE | 19 | 23 | 35 | 0 | 77 | 2.48 | 0.74 | 3.23 |
| FES | 45 | 43 | 29 | 49 | 166 | 3.86 | 1.40 | 5.26 |
| FF | 27 | 36 | 30 | 32 | 125 | 2.55 | 1.31 | 3.86 |
| FTA | 22 | 40 | 25 | 14 | 101 | 5.32 | 1.42 | 6.74 |
| CZU | 201 | 245 | 202 | 179 | 827 | 3.33 | 1.10 | 4.44 |

Table 3. Number of DSP students as of 31 December 2019 by year of study and faculties.

* number of studying students / students who have interrupted studies
ST = studying students IS = students who have interrupted studies

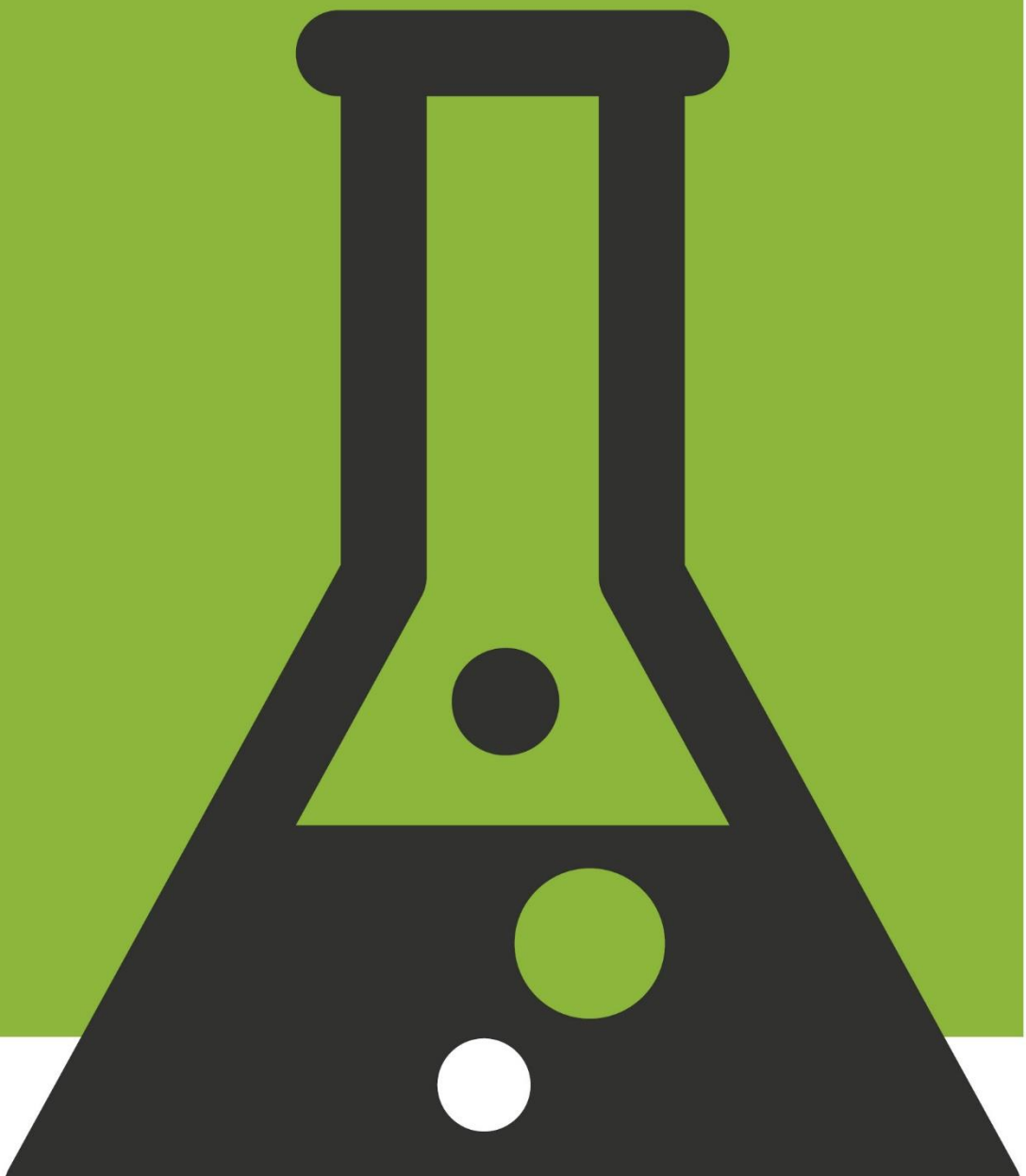
In 2020, only 42 students graduated with a PhD, which is 41 fewer than in 2019 (Graph 7). The numbers of graduates per faculty were as follows: FAFNR: 12, FES: 11, FE: 8, FFWS: 5, FTA: 4, FEM: 2. The low number of graduates was due to the fact that the study period was extended by half a year due to the pandemic situation.



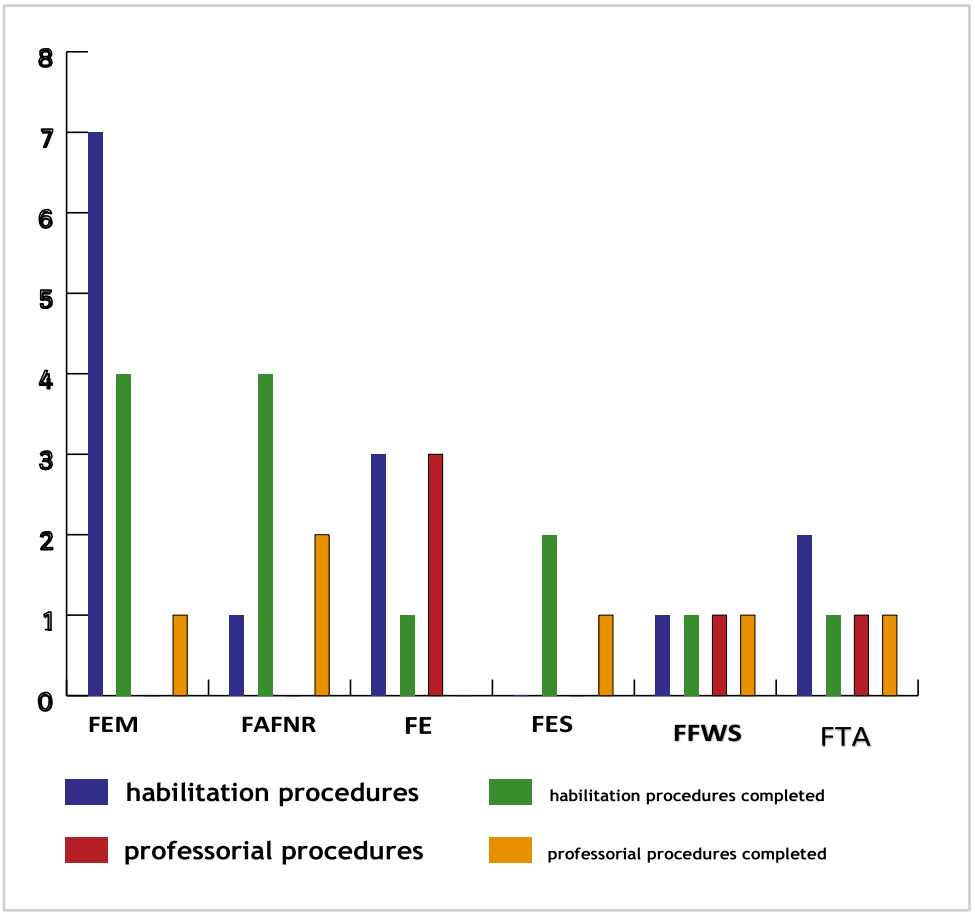

Graph 7. Number of DSP graduates per year in 2013-2019 at CZU.

# 004

# Career Growth of CZU Academic Staff



In 2020, 14 habilitation procedures were initiated at CZU, which is 13 fewer than in the previous year, and 13 were completed (in 2019, 18 habilitation procedures were completed). In 2020, 5 professor appointment procedures were initiated and 6 were completed (in the previous year, 9 professor appointment procedures were initiated and 4 were completed). The number of habilitation and professorial appointment procedures initiated and completed at individual faculties in 2019 is shown in Graph 8.

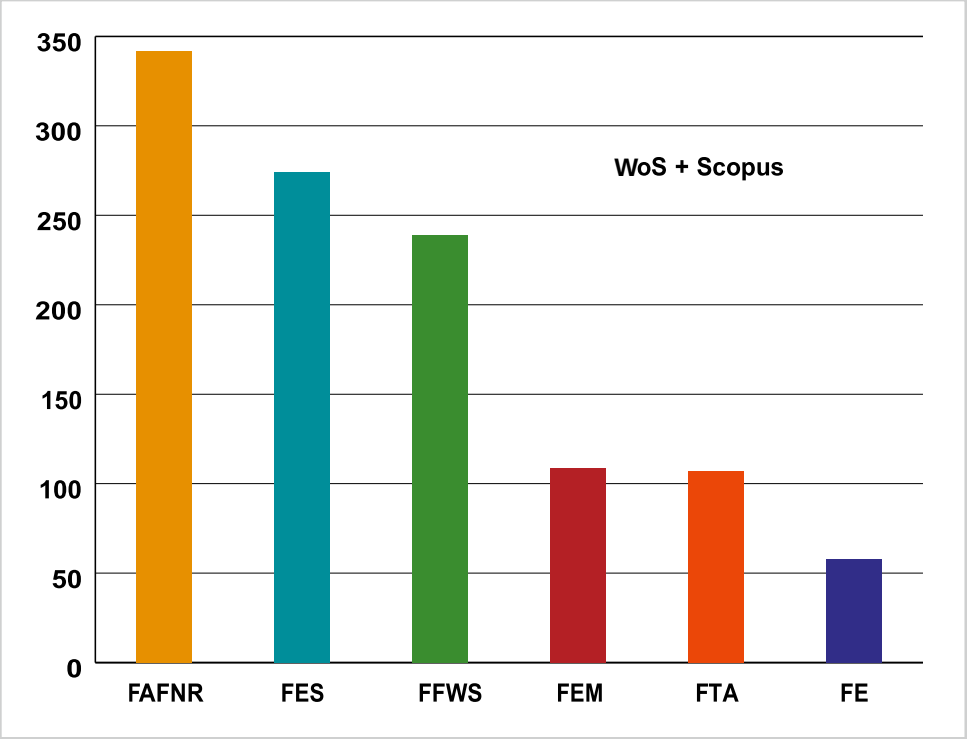



Graph 8. Number of initiated and completed habilitation and professorial procedures at CZU in 2020.

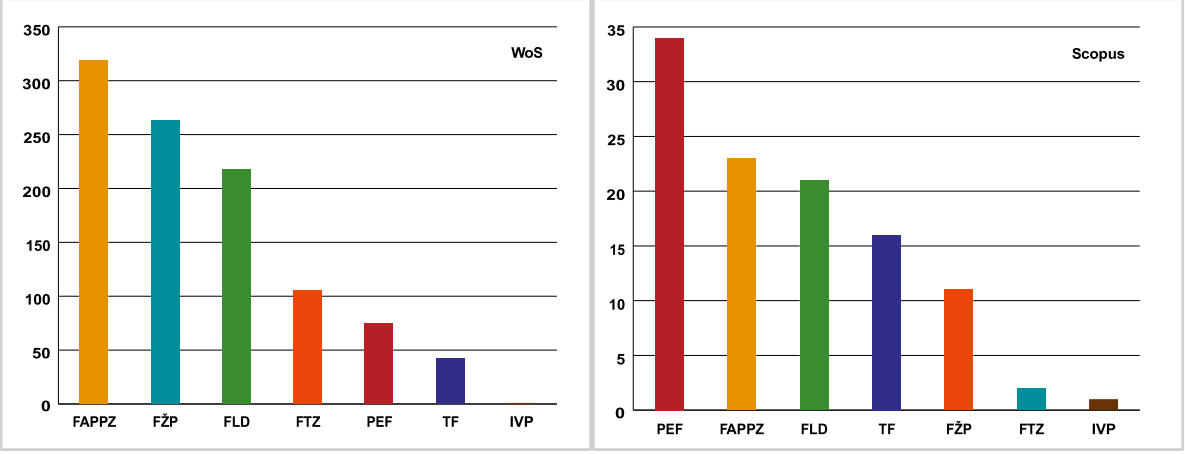
# 005

# Publication Activities CZU

In 2020, CZU staff in Prague published a total of 1026 scientific publications that are registered in the Web of Science and Scopus databases (Graph 9), which is 51 more outputs than in 2019. A total of 919 articles were published in the Web of Science database, which is 128 more than in 2019. In this regard, the productivity of CZU staff has been on an increasing trend in recent years. There are in fact 478 more articles compared to 2014, an increase of 52 percent. In contrast, the number of articles in the Scopus database (107) decreased by 77 articles year-on-year and by 109 articles compared to 2018 and 184 articles fewer than in 2017. In Graph 10, the outputs in the two databases are shown separately.

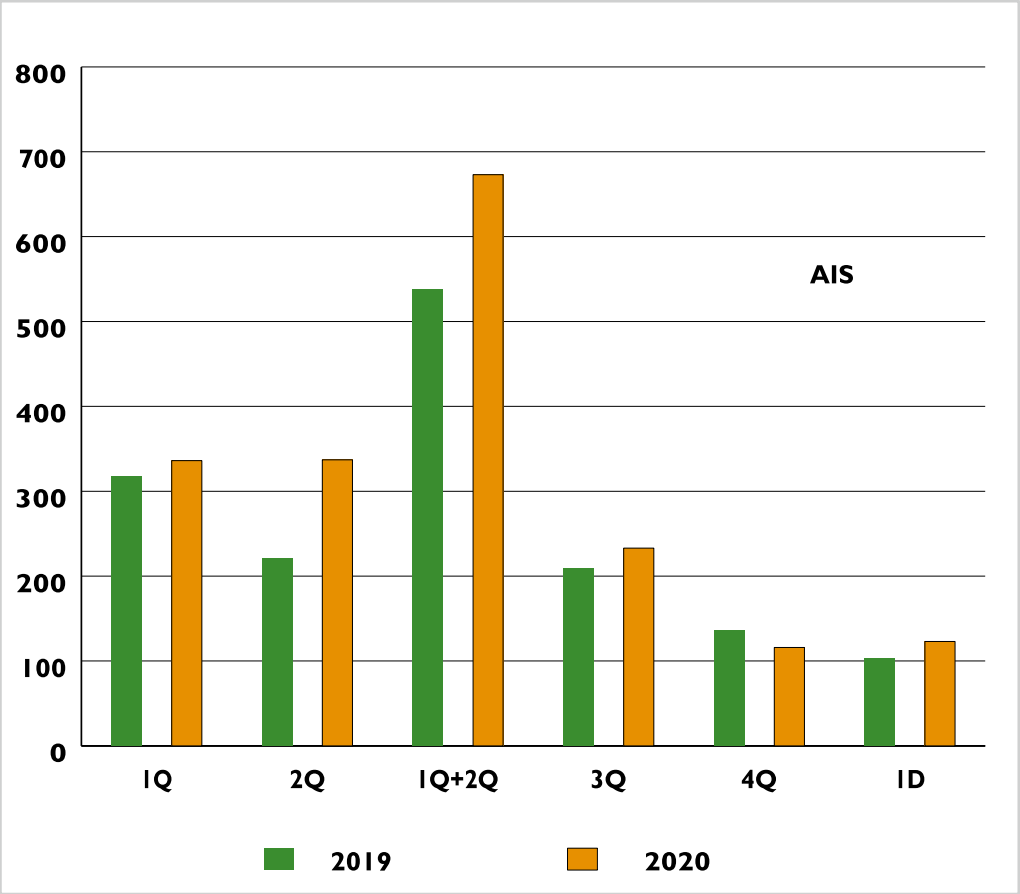



Graph 9. Number of publication outputs registered in the Web of Science and Scopus databases in 2020.



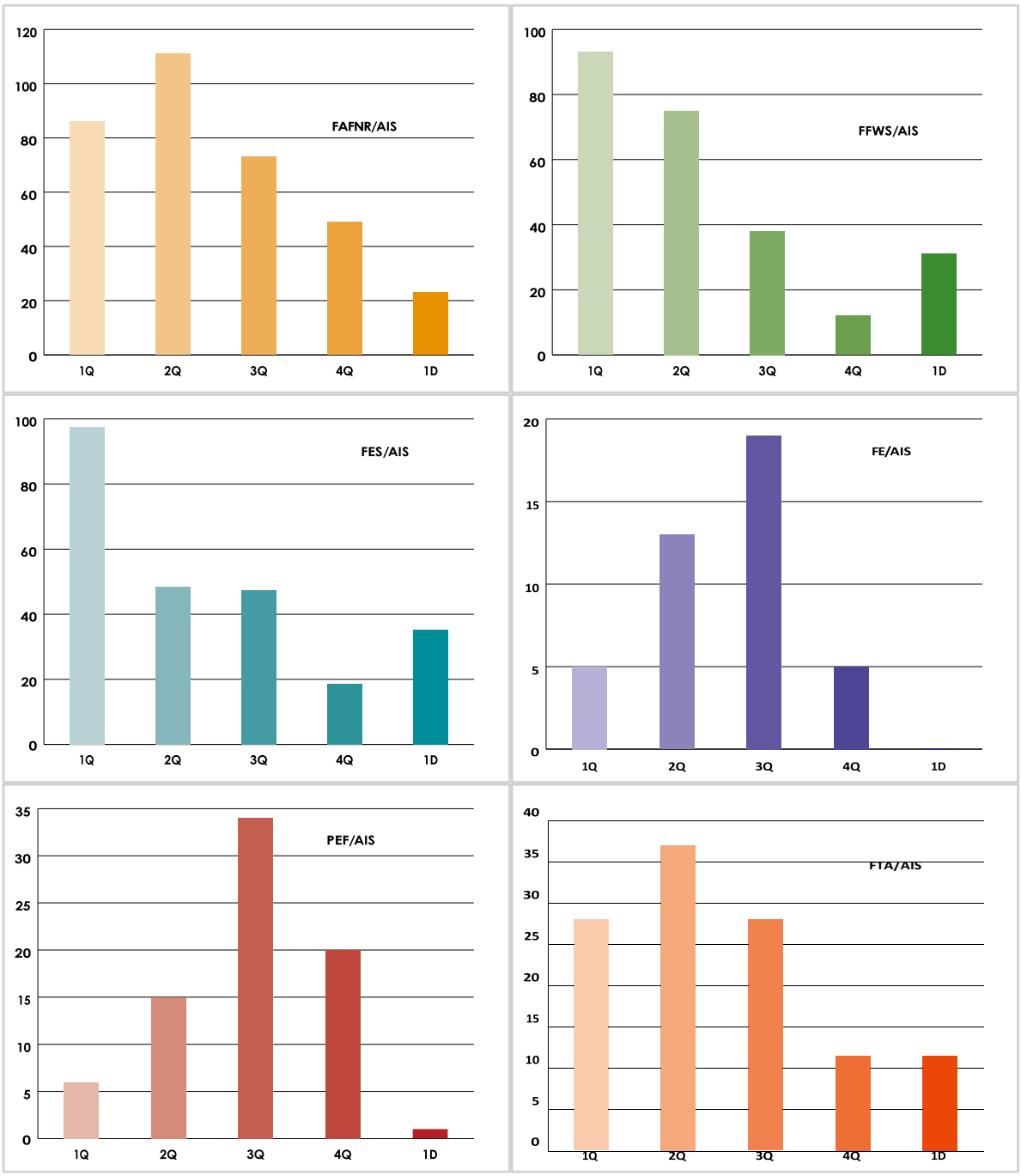

Graph 10. Number of publications registered in Web of Science (left) and Scopus (right) databases in 2020.

In Graph 11, publications registered in the Web of Science database are divided by quartile in terms of AIS (Advanced Impact Score). The Graph shows a slight increase of 19 articles in Q1 and a significant increase of 116 articles in Q2. **The number of articles increased by 38 in Q3 and again decreased in Q4 (by 20). The number of articles in D1 is up 19 percent from 2019 to 123, an increase of a full 64 percent from 2017. Over the same period, the number of articles in Q1 increased by 96 percent.**



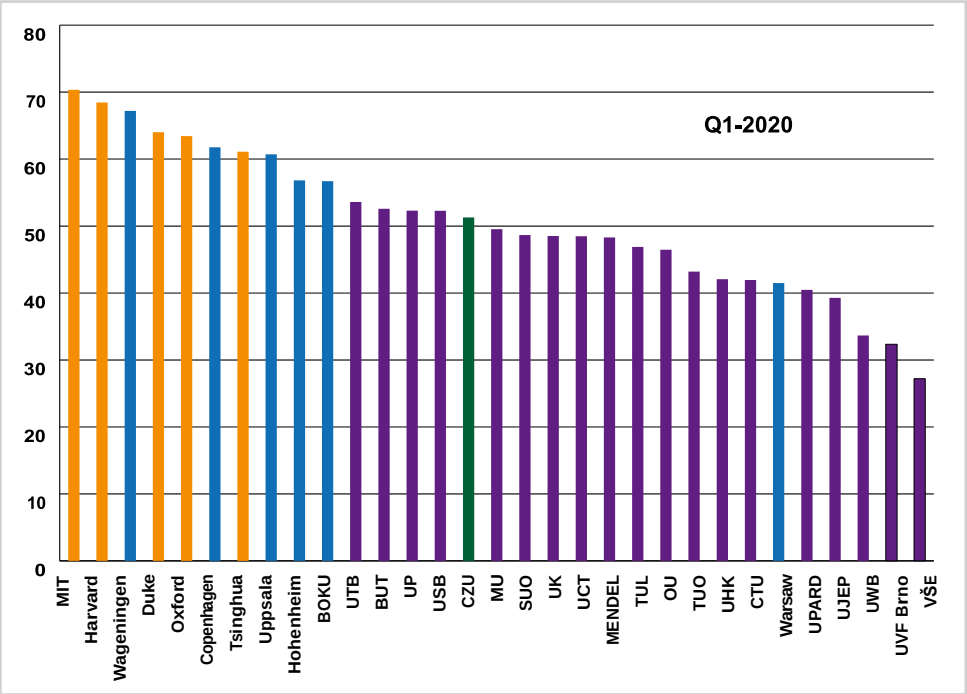

Graph 11. Number of CZU articles registered in Web of Science divided by AIS quartile in 2020 and comparison with 2019.

Graph 12 shows a comparison of the number of articles in Web of Science of each faculty classified by AIS, divided according to quartile and decile.

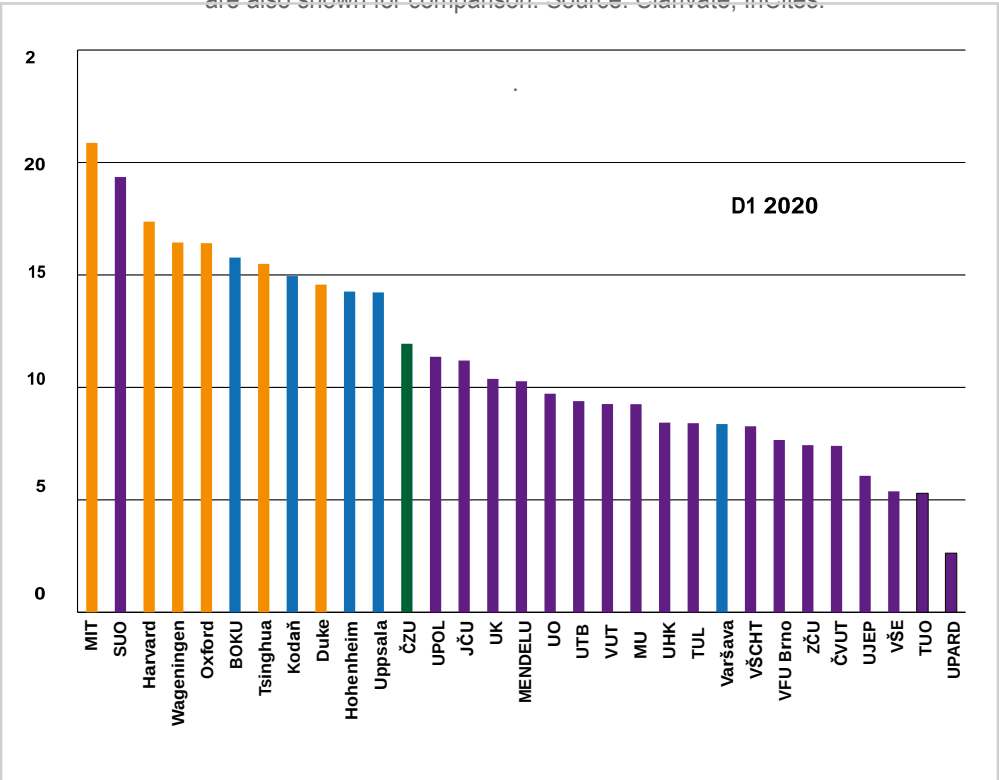



Graph 12. Breakdown of publication outputs in Web of Science into quartiles according to AIS for individual faculties in 2020. The first number above the column means the % of articles in a given quartile (decile) of the total number of articles of a given faculty, the second number means the % of the total number of CZU articles in a given quartile (decile).

Graph 13 compares CZU with nineteen universities in the Czech Republic, Euroleague universities and selected top world universities according to the percentage of articles in Q1 (IF) in Web of Science in 2019. The Czech University of Life Sciences Prague ranked 5th among universities in the Czech Republic (51.29%) and improved significantly compared to 2019 (7th place, 45.52%), 2018 (11th place, 38.02%) and 2010 (14th place, 28.57%).



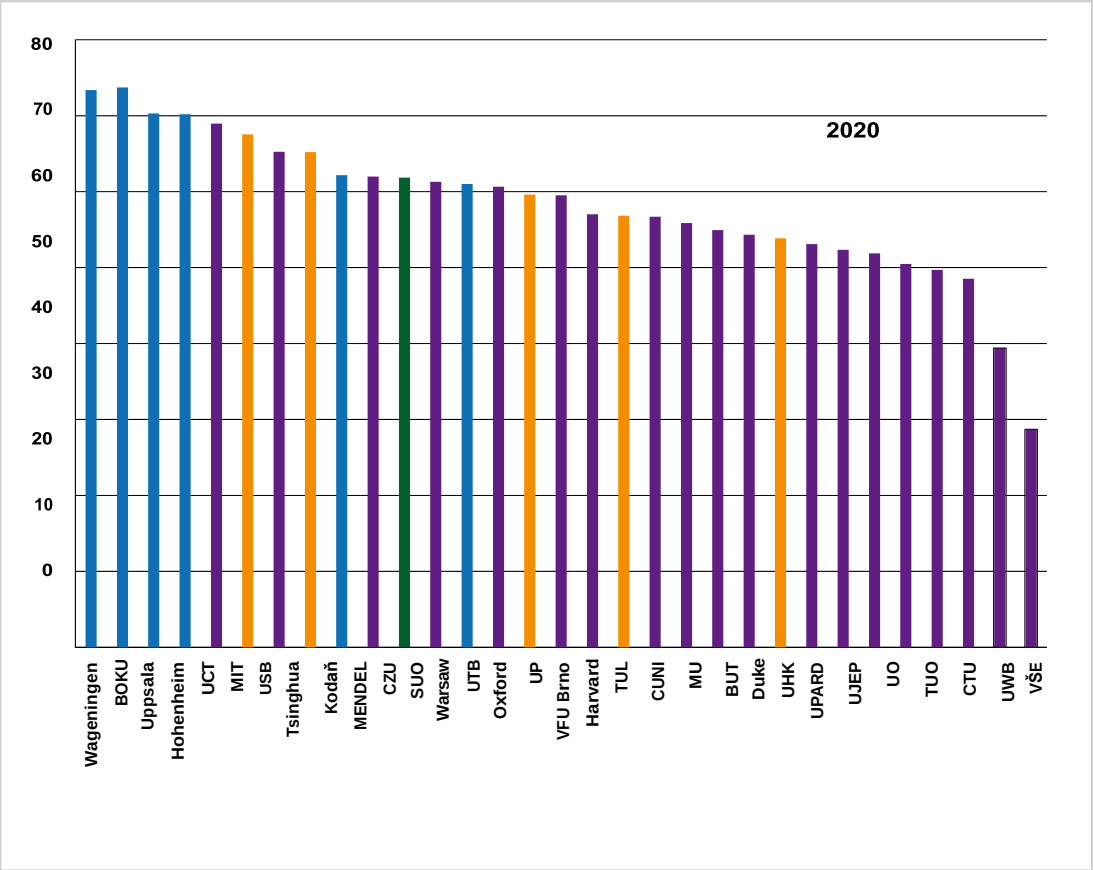

Graph 13. Percentage of CZU articles (in red) that were included in Web of Science in Q1 according to impact factor in 2020. Euroleague universities (in green) and some of the world's top universities are also shown for comparison. Source: Clarivate, InCites.




Graph 14. Percentage of CZU articles (in red) that were ranked in D1 in Web of Science according to impact factor in 2020. For comparison, Euroleague universities (in green) and some of the world's top universities are also shown. Source: Clarivate, InCites.

In Graph 14 there is a similar comparison for D1. In 2020 CZU significantly improved its position amongst Czech universities (11.94%, 2nd place). In 2019, CZU ranked 5th in this parameter (9.23%) and 4th in 2018 (9.78%). Compared to 2010, however, this is a significant increase, as in that year CZU ranked 17th among Czech universities (6.13%).

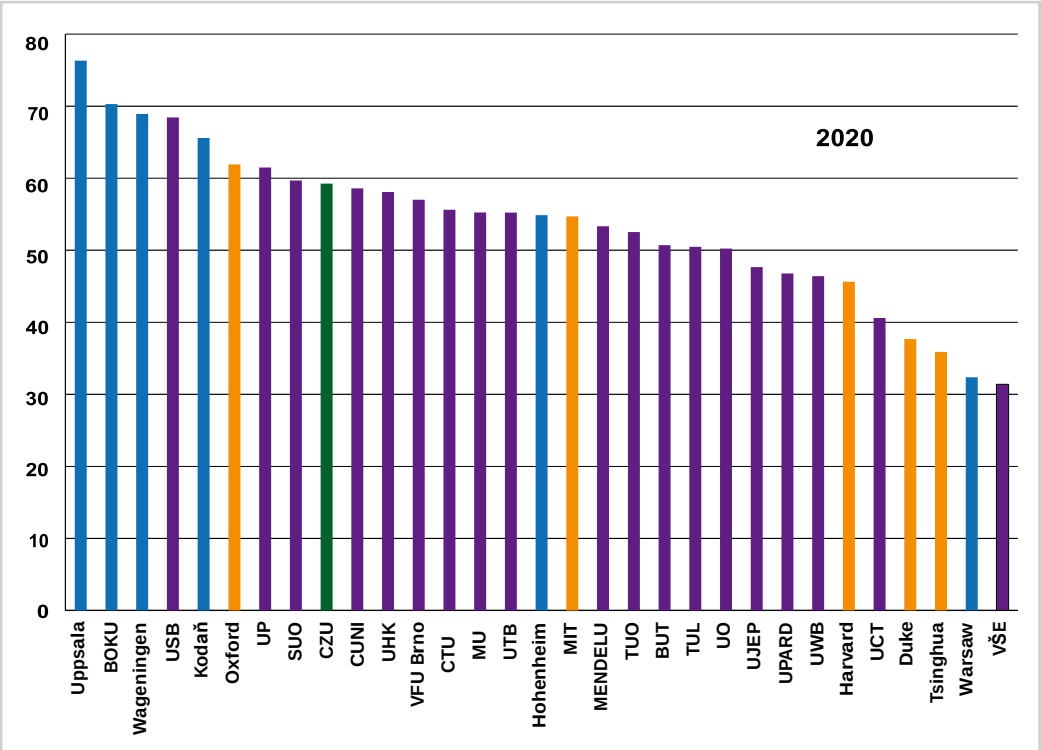
**The increase in the quality of CZU staff articles is inevitably reflected by a significant decrease in the proportion of articles in Q4, in addition to the increasing proportion of articles in D1 and Q1. Whereas in 2010, 25.4 percent of articles in Q4 were full articles, in 2020 only 6.83 percent are full articles.**




Graph 15. Comparison of CZU (green) with selected Czech universities (purple), Euroleague universities (blue) and selected top world universities (orange) according to the percentage of cited articles published in 2019 (as of 22 September 2020, source: Clarivate, InCites).

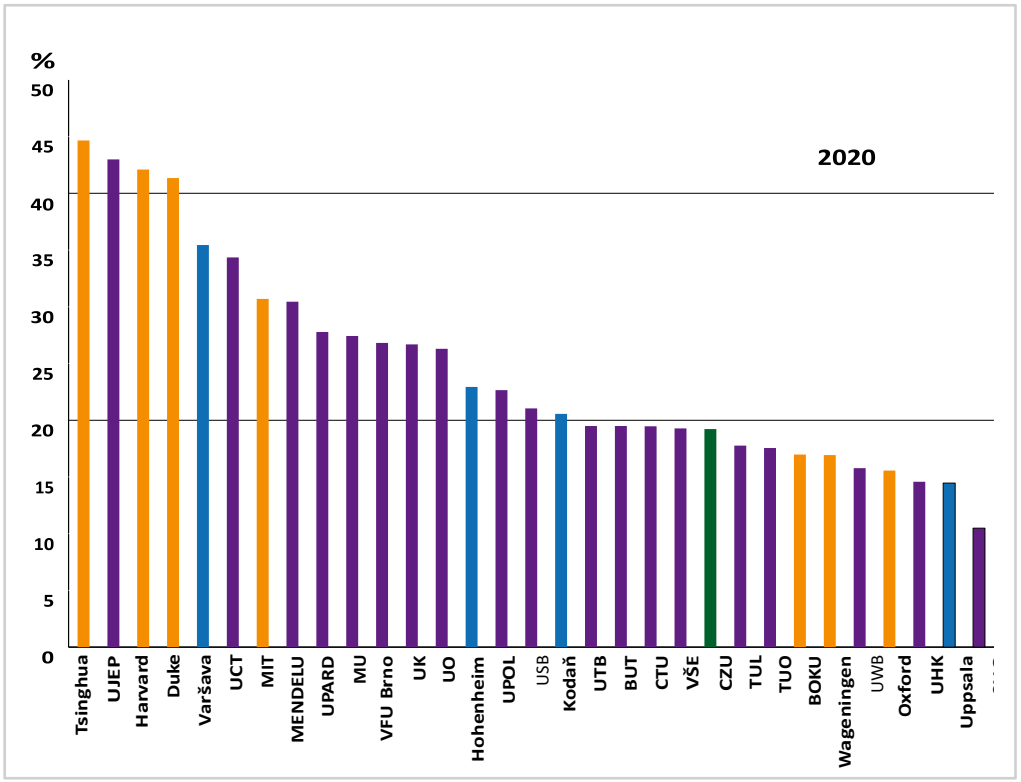
Graph 15 compares the citation rate of CZU articles in 2020 with universities in the Czech Republic, Euroleague universities and selected top universities worldwide. As of 15 September 2020, 61.9 percent of articles published in 2020 have been cited, which ranks CZU 4th among Czech universities. In 2019, CZU also ranked 4th among Czech universities in this parameter, but fewer articles were cited (55.7%).

Graph 16 evaluates the percentage of articles with international participation. In 2020, a total of 59.2 percent of articles with international participation were published at CZU, which is 6.1 percent more than in 2019. Compared to 2010, this is a significant increase in international collaboration, as in that year only 15.3 percent of articles were published with international participation and in this regard CZU was among the worst in the country (16th place).




Graph 16. Percentage of articles with IF with international participation in the Web of Science database published in 2020. Source: Clarivate, InCites.

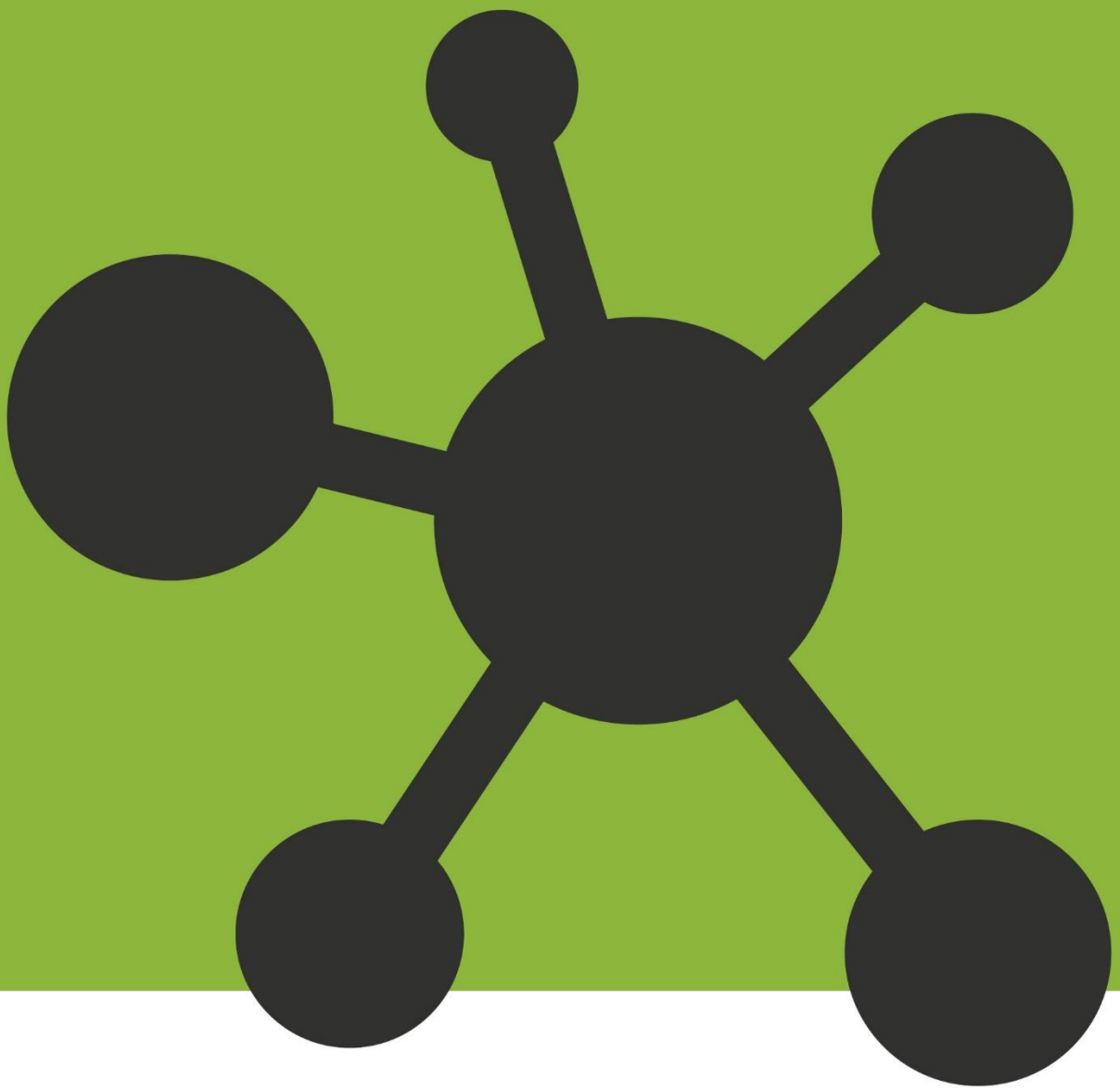
In contrast to international collaboration, CZU staff published only 19.2 percent of articles in collaboration with domestic institutions.




Graph 17. Percentage of articles with IF with domestic collaboration in Web of Science database published in 2020. Source: Clarivate, InCites.

# 006

# CZU Staff Articles



# Publications of CZU employees that were published in 2019 in journals included in the Nature Index database

(CZU employees are printed in bold)

- Zellweger, F., De Frenne, P., Lenoir, J., Vangansbeke, P., Verheyen, K., Bernhardt-Roemermann, M., Baeten, L., Hedl, R., Berki, I., Brunet, J., Van Calster, H., Chudomelova, M., Decocq, G., Dirnboeck, T., Durak, T., Heinken, T., Jaroszewicz, B., **Kopecký, M.**, Malis, F., Macek, M., Malicki, M., Naaf, T., Nagel, T.A., Ortmann-Ajkai, A., Petrik, P., Pielech, R., Reczynska, K., Schmidt, W., Standovar, T., Swierkosz, K., Teleki, B., Vild, O., Wulf, M., Coomes, D., 2020.Forest microclimate dynamics drive plant responses to warming. Science 368, 772–775.
- Khallaf, M. A., Auer, T. O., Grabe, V., Depetris-Chauvin, A., **Munishamappa**, B. A., Zhang, D. D., Lavista-Llanos, S., Kaftan, F., Weissflog, J., Matzkin, L. M., Rollmann, S. M., Lofstedt, C. H., Svatos, A., Dweck, H. K. M., Sachse, S., Benton, R., Hansson, B., Knaden, M., 2020. Mate discrimination among subspecies through a conserved olfactory pathway. Science Advances 6(25): eaba5279.
- Villa-Martin, P., Buček, A., **Bourguignon, T.**, Pigolotti, S., 2020. Ocean currents promote rare species diversity in protists. Science Advances 6:eaaz9037.
- Sanchez-Marroquin, A., Arnalds, O., Baustian-Dorsi, K. J., Browse, J., **Waldhauserová, P.**, Harrison, A. D., Pringle, K. J., Maters, E. C., Vergara-Temprado, J., Burke, I. T., McQuaid, J., Carslaw, K. S., Murray, B., 2020. Iceland is an episodic source of atmospheric ice-nucleating particles relevant for mixed-phase clouds. Science Advances 6(26):aba8137.
- **Bourguignon, T.**, Kinjo, Y., Villa-Martin, P., Coleman, N. V., Tang, Q., Arab, D. A., Wang, Z. Q, Tokuda, G., Hongoh, Y., Ohkuma, M., Ho, S. Y. W., Pigolotti, S., Nathan, L., 2020. Increased mutation rate is linked to genome reduction in Prokaryotes. Curent Biology 30(19): R1083–R1085.
- **Benediktová, K., Adámková, J., Svoboda, J., Painter, M. S., Bartoš, L., Nováková, P., Vynikalová, L., Hart, V.**, Phillips, J., Burda, H., 2020. Magnetic alignment enhances homing efficiency of hunting dogs. Elife 9:e55080.
- Yang, X., He, Q., Guo, F., Sun, X., Zhang, J., Chen, M., **Vymazal, J.**, Chen, Y., 2020. Nanoplastics disturb nitrogen removal in constructed Wetlands: response of microbes and macrophytes. Environmental Science & Technology 54 (21): 14007–14016.
- Stockey, R. G., Cole, D. B., Planavsky, N. J., Loydell, K. D., **Frýda, J.**, Sperling, E. A., 2020. Persistent global marine euxinia in the early Silurian. Nature Communications 11: 1804.

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The results of applied research such as book and book chapter, patent, utility model, certified method, software, research report and contribution in the conference proceedings for 2019 are listed in Table 4.

| Faculty | Book + chapter in the book | Patent | Utility sample | Certified methodology | Software | Research report | Conference contribution |
|---|---|---|---|---|---|---|---|
| FAFNR | 5 | 1 | 2 | 15 | 4 | 54 | 26 |
| FFWS | 11 | 0 | 1 | 3 | 5 | 15 | 26 |
| FTA | 2 | 0 | 0 | 1 | 0 | 8 | 5 |
| FES | 7 | 0 | 1 | 4 | 3 | 2 | 4 |
| FEM | 11 | 0 | 0 | 0 | 4 | 9 | 91 |
| FE | 4 | 2 | 6 | 7 | 2 | 6 | 61 |
| IEC | 4 | 0 | 0 | 0 | 0 | 0 | 16 |

Table 4. Results of applied research in 2020 at CZU.

# 007

# Evaluation according to the Methodology 2017+

# Evaluation of modules 1 and 2 according to the Methodology 2017+ for the period 2016-2019

The results of this evaluation are summarised in Tables 5 and 6. The following text sets out the evaluation criteria for each stage of the evaluation.
Qualitative scale for the evaluation criterion "**contribution to knowledge**":

- A result that is world-leading in terms of originality, significance and difficulty to obtain.

- A result that is internationally excellent in terms of originality, significance and difficulty to obtain, but does not reach the highest level of excellence (excellent).

- A result that is internationally recognised in terms of originality, significance and difficulty to obtain.

- A result that is nationally recognizable in terms of originality, significance and difficulty to obtain.

- A result that does not meet the standard of nationally recognized work.

The qualitative scale for the "**social relevance**" evaluation criterion is as follows:

- A world-leading result, the use of which in practice will bring about a fundamental change with an international economic impact (a realistic assumption of a broad application in multiple foreign markets, etc.) or a change with an extraordinary international impact on society (a realistic assumption of a fundamental application at the international level in areas of public interest).

- A result at an excellent level, the use of which in practice will bring about a change with an international economic impact (a realistic assumption of application on a foreign market, etc.) or a change with a significant impact on society (a realistic assumption of fundamental application in areas of public interest).

- The result at a very good level, whose use in practice will bring change with economic impact on the Czech market or change with impact on society (a realistic assumption of application in areas of public interest).

- A result at an average level, whose use in practice will bring about a partial change with an economic impact on the Czech market or a partial change with an impact on Czech society (a realistic assumption of partial application in areas of public interest).

- The result is at a below-average level, the use of which in practice is unlikely to bring any change with economic impact or change with impact on Czech society (there is no realistic assumption of application in areas of public interest).

The weighted average of the CZU evaluation in each year was: 3.36 (2016), 3.17 (2017), 2.87 (2018) and 2.93 (2019).

| Order | Evaluation | 1 | 2 | 3 | 4 | 5 | Total results | Average |
|---|---|---|---|---|---|---|---|---|
| 1 | **CUNI** | 64 | 119 | 86 | 35 | 9 | 313 | 2.38 |
| 2 | **USB** | 5 | 21 | 17 | 4 | 0 | 47 | 2.43 |
| 3 | **UP** | 21 | 49 | 37 | 13 | 6 | 126 | 2.48 |
| 4 | **VFU** | 3 | 6 | 10 | 2 | 0 | 21 | 2.52 |
| 5 | **OU** | 0 | 12 | 14 | 1 | 0 | 27 | 2.59 |
| 6 | **MU** | 25 | 75 | 72 | 39 | 12 | 233 | 2.72 |
| 7 | **UCT** | 8 | 13 | 16 | 9 | 4 | 50 | 2.76 |
| 8 | **CTU** | 16 | 39 | 55 | 33 | 6 | 149 | 2.83 |
| **9** | **CZU** | **4** | **11** | **15** | **8** | **3** | **41** | **2.88** |
| 10 | **UPardubice** | 1 | 14 | 9 | 5 | 5 | 34 | 2.97 |
| 11 | **UJEP** | 2 | 5 | 7 | 5 | 2 | 21 | 3.00 |
| 12 | **BUT** | 1 | 27 | 29 | 13 | 11 | 81 | 3.07 |
| 13 | **UWB** | 4 | 19 | 18 | 17 | 9 | 67 | 3.12 |
| 14 | **SU** | 2 | 1 | 5 | 5 | 1 | 14 | 3.14 |
| 14 | **TUL** | 0 | 9 | 10 | 5 | 4 | 28 | 3.14 |
| 16 | **UHK** | 0 | 5 | 7 | 2 | 3 | 17 | 3.18 |
| 17 | **MENDEL** | 1 | 7 | 16 | 8 | 5 | 37 | 3.24 |
| 18 | **VŠE** | 0 | 6 | 9 | 6 | 5 | 26 | 3.39 |
| 19 | **VŠB-TUO** | 1 | 13 | 17 | 23 | 12 | 66 | 3.49 |
| 20 | **UTB** | 0 | 3 | 9 | 7 | 13 | 32 | 3.94 |

Table 5. Evaluation of CZU outputs in Module 1 in 2016-2018. The years denote the outputs published in the relevant year.

| Evaluation | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| FAFNR | 0 | 2 | 1 | 0 | 0 |
| FFWS | 0 | 0 | 5 | 1 | 2 |
| FTA | 0 | 1 | 0 | 1 | 0 |
| FES | 0 | 1 | 4 | 0 | 0 |
| FEM | 0 | 0 | 2 | 3 | 2 |
| FE | 0 | 0 | 0 | 0 | 0 |
| **Total 2016** | 0 | 4 | 12 | 5 | 4 |
| FAFNR | 0 | 5 | 4 | 7 | 0 |
| FFWS | 0 | 3 | 1 | 2 | 0 |
| FTA | 0 | 0 | 1 | 0 | 0 |
| FES | 0 | 3 | 8 | 3 | 0 |
| FEM | 0 | 2 | 1 | 2 | 3 |
| FE | 0 | 1 | 0 | 0 | 0 |
| **Total 2017** | 0 | 14 | 15 | 14 | 4 |
| FAFNR | 2 | 4 | 4 | 1 | 1 |
| FFWS | 0 | 2 | 1 | 3 | 0 |
| FTA | 0 | 0 | 3 | 0 | 0 |
| FES | 1 | 4 | 3 | 0 | 0 |
| FEM | 1 | 0 | 1 | 2 | 1 |
| FE | 0 | 1 | 3 | 2 | 0 |
| **Total 2018** | 4 | 11 | 15 | 8 | 3 |
| FAFNR | 0 | 4 | 5 | 4 | 0 |
| FFWS | 1 | 4 | 2 | 0 | 0 |
| FTA | 0 | 0 | 0 | 1 | 1 |
| FES | 0 | 5 | 2 | 1 | 1 |
| FEM | 0 | 0 | 2 | 2 | 0 |
| FE | 0 | 2 | 2 | 2 | 0 |
| **Total 2016–2019** | 5 | 44 | 55 | 37 | 13 |

Table 6. Share of individual CZU faculties in the results assessed in Module 1 of the Methodology 2017+ in 2016-2019.

Overview of the Web of Science (WoS) categories in which the Czech University of Life Sciences Prague ranked among the top three research organizations in the Czech Republic for the 2016-2019 period in the 1st decile (D1) and 1st quartile (Q1) categories.

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **49** | **36** | | |
| 2 | **MENDEL** | 14 | 10 | | |
| 3 | **VŠE** | 14 | 10 | | |

WoS category: **Agricultural Economics and Policy** (FORD 4.5. Other agricultural science), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **31** | **5** | **40** | **60** |
| 2 | **USB** | 19 | 3 | 0 | 100 |
| 3 | **BUT** | 19 | 3 | 67 | 100 |

WoS category: **Agricultural Engineering** (FORD 4.5. Other agricultural science), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results s „reprint author" v Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | **CRI** | 28 | 19 | 32 | 79 |
| **2** | **CZU** | **26** | **18** | **28** | **72** |
| 3 | **GCRI CAS** | 12 | 8 | 50 | 38 |

WoS category: **Agricultural Engineering** (FORD 4.5. Other agricultural science), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **46** | **13** | **46** | **54** |
| 2 | **IAS** | 39 | 11 | 45 | 55 |
| 3 | **USB** | 21 | 6 | 67 | 67 |

WoS category: **Agriculture, Dairy and Animal Science** (FORD 4.2. Animal and dairy science), 1st DECILE

| Order | Research organization | Share in the field in Q%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | IAS | 38 | 33 | 65 | 32 |
| **2** | **CZU** | **29** | **24** | **33** | **38** |
| 3 | USB | 27 | 22 | 64 | 68 |

WoS category: Agriculture, Dairy and Animal Science (FORD 4.2. Animal and dairy science), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **22** | **13** | **31** | **54** |
| 2 | USB | 15 | 9 | 44 | 56 |
| 3 | MENDEL | 15 | 9 | 44 | 56 |

WoS category: Agriculture, multidisciplinary (FORD 4.1. Agriculture, forestry, fisheries), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **24** | **22** | **36** | **55** |
| 2 | MENDEL | 14 | 13 | 54 | 46 |
| 2 | USB | 13 | 12 | 50 | 50 |

WoS category: Agriculture, multidisciplinary (FORD 4.1. Agriculture, forestry, fisheries), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | GCRI CAS | 45 | 27 | 30 | 78 |
| 2 | MENDEL | 25 | 15 | 13 | 73 |
| **3** | **CZU** | **20** | **12** | **33** | **83** |

WoS category: Agronomy (FORD 4.1. Agriculture, forestry, fisheries), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **26** | **41** | **29** | **63** |
| 2 | GCRI CAS | 21 | 34 | 29 | 71 |
| 2 | CRI | 19 | 31 | 45 | 55 |

WoS category: Agronomy (FORD 4.1. Agriculture, forestry, fisheries), 1st QUARTILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | CUNI | 28 | 45 | 22 | 71 |
| 2 | IB CAS | 28 | 44 | 18 | 80 |
| **2** | **CZU** | **23** | **37** | **41** | **62** |

WoS category: Biodiversity Conservation (FORD 1.6. Biological sciences), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | CTU | 44 | 22 | 91 | 18 |
| 2 | CUNI | 14 | 7 | 43 | 57 |
| **2** | **CZU** | **12** | **6** | **33** | **67** |

WoS category: Engineering, Civil (FORD 2.1. Civil engineering), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | Biol. Centrum CAS | 35 | 67 | 36 | 81 |
| 2 | USB | 26 | 49 | 27 | 71 |
| **3** | **CZU** | **19** | **36** | **33** | **69** |

WoS category: Entomology (FORD 1.6. Biological sciences), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | MU | 34 | 91 | 37 | 90 |
| **2** | **CZU** | **14** | **39** | **26** | **92** |
| 3 | UK | 14 | 39 | 31 | 69 |

WoS category: Environmental Sciences (FORD 1.5. Earth and related environmental sciences), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | MU | 27 | 255 | 37 | 80 |
| **2** | **CZU** | **17** | **160** | **45** | **64** |
| 3 | UK | 16 | 146 | 32 | 55 |

WoS category: Environmental Sciences (FORD 1.5. Earth and related environmental sciences), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | MU | 20 | 2 | 0 | 100 |
| 2 | CUNI | 20 | 2 | 50 | 50 |
| **3** | **CZU** | **20** | **2** | **0** | **100** |

WoS category: **Environmental Studies** (FORD 5.7. Social and economic geography), 1st DECILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | USB | 71 | 10 | 60 | 50 |
| **1** | **CZU** | **21** | **3** | **0** | **67** |
| 3 | Biol.centrumCAS | 14 | 2 | 0 | 100 |

WoS category: **Fisheries** (FORD 4.1. Agriculture, Forestry, Fisheries), 1st DECILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | UCT | 20 | 17 | 88 | 59 |
| 2 | UTB | 13 | 11 | 82 | 27 |
| **2** | **CZU** | **12** | **10** | **80** | **30** |

WoS category: **Food Science and Technology** (FORD 2.11. Other Engineering and technologies, 4.5. Other agricultural sciences), 1st DECILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | UCT | 20 | 44 | 73 | 48 |
| 2 | MU | 12 | 27 | 30 | 37 |
| **2** | **CZU** | **11** | **24** | **71** | **38** |

WoS category: **Food Science and Technology** (FORD 2.11. Other Engineering and technologies, 4.5. Other agricultural sciences), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in d1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **37** | **67** | **40** | **78** |
| 2 | IB CAS | 20 | 36 | 39 | 50 |
| 2 | MU | 19 | 35 | 49 | 54 |

WoS category: **Forestry** (FORD 4.1. Agriculture, forestry, fisheries), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **37** | **108** | **38** | **80** |
| 2 | MU | 19 | 57 | 37 | 68 |
| 3 | MENDEL | 19 | 55 | 33 | 56 |

WoS category: **Forestry** (FORD 4.1. Agriculture, forestry, fisheries), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | CUNI | 41 | 15 | 40 | 60 |
| 2 | MU | 27 | 10 | 60 | 50 |
| **3** | **CZU** | **14** | **5** | **60** | **80** |

WoS category: **Geography** (FORD 5.7. Social and economic geography), 1st QUARTILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **24** | **10** | **30** | **80** |
| 2 | UP | 20 | 8 | 50 | 100 |
| 3 | IEB | 17 | 7 | 57 | 100 |

WoS category: **Horticulture** (FORD 4.1. Agriculture, forestry, fisheries), 1st QUARTILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | USB | 36 | 5 | 60 | 80 |
| 2 | Biol.centrum CAS | 36 | 5 | 60 | 80 |
| **3** | **CZU** | **21** | **3** | **0** | **100** |

WoS category: **Limnology** (FORD 1.6. Biological sciences), 1st DECILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | USB | 46 | 11 | 55 | 91 |
| 2 | Biol.centrumCAS | 42 | 10 | 50 | 90 |
| **3** | **CZU** | **12** | **3** | **0** | **100** |

WoS category: **Limnology** (FORD 1.6. Biological sciences), 1st QUARTILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | CTU | 27 | 22 | 73 | 36 |
| **2** | **CZU** | **17** | **14** | **71** | **50** |
| 3 | BUT | 16 | 13 | 38 | 54 |

WoS category: **Materials Science, Composites** (FORD 2.5. Materials engineering), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | GCRI CAS | 30 | 13 | 15 | 100 |
| 2 | MU | 23 | 10 | 20 | 100 |
| **3** | **CZU** | **16** | **7** | **0** | **100** |

WoS category: **Meteorology and Atmospheric Sciences** (FORD 1.5. Earth and related environmental sciences), 1st DECILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | MU | 40 | 2 | 50 | 50 |
| **1** | **CZU** | **40** | **2** | **50** | **50** |
| 3 | MENDEL | 20 | 100 | 100 | |

WoS category: **Regional and Urban Planning** (FORD 5.7. Social and economic geography), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | CUNI | 33 | 5 | 60 | 60 |
| **2** | **CZU** | **20** | **3** | **33** | **67** |
| 2 | MU | 20 | 3 | 67 | 33 |

WoS category: **Regional and Urban Planning** (FORD 5.7. Social and economic geography), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **42** | **5** | **40** | **80** |
| 2 | UWB | 17 | 2 | 100 | 50 |
| 2 | CUNI | 17 | 2 | 0 | 100 |

WoS category: **Remote Sensing** (FORD 2.7. Environmental engineering), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **24** | **9** | **56** | **56** |
| 2 | GCRI CAS | 21 | 8 | 38 | 88 |
| 3 | UWB | 13 | 5 | 60 | 60 |

WoS category: **Remote Sensing** (FORD 2.7. Environmental engineering), 1st QUARTILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | UK | 27 | 39 | 23 | 46 |
| **2** | **CZU** | **20** | **29** | **38** | **69** |
| 3 | Biol.centrumCAS | 18 | 26 | 23 | 58 |

WoS category: **Soil Science** (FORD 4.1. Agriculture, forestry, fisheries), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **50** | **2** | **50** | **50** |
| 1 | MU | 50 | 2 | 50 | 0 |
| | | | | | |

WoS category: **Urban Studies** (FORD 5.7. Social and economic geography), 1st DECILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **23** | **25** | **32** | **76** |
| 2 | CUNI | 20 | 21 | 38 | 67 |
| 3 | UP | 11 | 12 | 33 | 67 |

WoS category: **Water Resources** (FORD 1.5. Earth and related environmental sciences), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| **1** | **CZU** | **24** | **38** | **34** | **71** |
| 1 | CUNI | 19 | 30 | 40 | 67 |
| 3 | CTU | 10 | 16 | 75 | 50 |

WoS category: **Water Resources** (FORD 1.5. Earth and related environmental sciences), 1st QUARTILE

| Order | Research organization | Share in the field in D1 (%) | Number of results of the organization in D1 | Share of results with "reprint author" in D1 (%) | Share of results with international cooperation in D1 (%) |
|---|---|---|---|---|---|
| 1 | **CUNI** | 29 | 30 | 40 | 70 |
| **2** | **CZU** | **23** | **24** | **50** | **92** |
| 3 | **UP** | 19 | 20 | 60 | 60 |

WoS category: **Zoology** (FORD 1.6. Biological sciences), 1st DECILE

| Order | Research organization | Share in the field in Q1 (%) | Number of results of the organization in Q1 | Share of results with "reprint author" in Q1 (%) | Share of results with international cooperation in Q1 (%) |
|---|---|---|---|---|---|
| 1 | **CUNI** | 32 | 70 | 50 | 63 |
| 2 | **USB** | 21 | 46 | 39 | 72 |
| **3** | **CZU** | **15** | **33** | **45** | **79** |

WoS category: **Zoology** (FORD 1.6. Biological sciences), 1st QUARTILE

**LIST OF ABBREVIATIONS OF INSTITUTIONS:**

CTU – Czech Technical University in Prague
CZU – Czech University of Life Sciences Prague
USB – University of South Bohemia in České Budějovice
UO – University of Ostrava
MENDEL – Mendel University in Brno
MU – Masaryk University
SU – Silesian University in Opava
TUL – Technical University of Liberec
UHK – University of Hradec Kralove
UJEP – J.E. Purkyně university in Ústí nad Labem
CUNI – Charles University
UPardubice – University of Pardubice
UP – Palacký University in Olomouc
UTB – Tomas Bata University in Zlín
VFU – University of Veterinary and Pharmaceutical Sciences Brno
VSB-TUO – Vysoká škola báňská – Technical University of Ostrava
UCT – University of Chemistry and Technology
VŠE – University of Economics in Prague
BUT – Brno University of Technology
UWB – University of West Bohemia in Pilsen

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IBP CAS – Institute of Biophysics CAS, v. v. i.
Biol. centrum CAS – Biology Centre CAS, v. v. i.
IB CAS – Institute of Botany, v. v. i.
IEB CAS - Institute of Experimental Botany CAS, v. v. i.
GCRI CAS – Global Change Research Institute CAS, v. v. i.
CRI – Crop Research Institute, v. v. i.
IAS – Institute of Animal Science, v. v. i.

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