

China sharpens up in cutting-edge science

China has surpassed the United Kingdom and now ranks second, behind the United States, in its innovative cutting-edge science capabilities, according to a new index released on Thursday.

The Chinese Academy of Sciences and Clarivate Analytics, a global analytic firm, published a new index measuring the world's top 20 most innovative countries' research capabilities across 143 of the hottest and emerging fields of science in 10 major categories.

The index is based on a country's contribution to a specific field and the number of citations its science papers have in their fields. The US leads the index with a score of 281.1, China is runner-up with 118.8 points, followed by the United Kingdom at 96.9, and Germany at 91.

The academy and Clarivate also published the annual Research Fronts 2017 report – the fourth of its kind – detailing how each country is performing in the categories and providing insights into global research and trends in scientific development.

Frontier sciences refer to the most groundbreaking hypotheses, methods and data that have not been widely tested or accepted. It is a testimony to a country's investment and capabilities in basic science research.

Last year, China surpassed the UK for the first time in the number of world-leading frontier science fields, with China having 30, compared to the UK's 14.

"This year, China has become the second most innovative country in frontier science, leading the second division of innovative countries, including the UK and Germany," said Pan Jiaofeng, president of the academy's Institutes of Science and Development.

Bai Chunli, president of the academy, said China's scientific development has "entered a new era, with emphasis on making breakthroughs in basic science research".

This year, China leads the world in 25 of 143 topics in frontier natural and social science. China's best-performing subjects are chemistry, material sciences, mathematics, computer sciences and engineering.

The US ranks first with 86 fields. The UK and Germany each have five, taking third and fourth place respectively.

Of the 10 major scientific categories, the US leads in eight, ranging from physics to biology. China leads in two – material science and computer engineering – according to the report.

In the environmental science category, China climbed one place to second thanks to its pivotal role in researching the formation mechanism for smog, said Leng Fuhai, a researcher at the Institutes of Science and Development.

China produced 662 science papers, including 22 highly influential “core research papers”, in the past five years, Leng said. Both the number of papers and core research papers are more than triple the amount of the runner-up, the United States.