

What's Going on in the Nanotechnology Papers' World through the Lens of StatNano

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Over the past years, the USA and China have published the largest number of highly cited nanotechnology papers, and the study of non-fullerene acceptors for solar cell applications has been one of the hot topics among the nanotechnology papers of the previous year.

According to StatNano's statistical analysis of highly cited nanotechnology papers, [China](#) has made a marginal improvement and topped the list by leaving the [USA](#) behind for the first time during the past five years ending in 2019. Although [China](#) had taken the first spot from this country in holding the largest number of nanotechnology publications since 2008, it remained in the 2nd rank following the [USA](#) in terms of H-index until 2019. H-index is an author-level metric for measuring both the productivity and citation impact of an individual's publications.

The table below lists the top 15 countries of the world according to their H-index in the following two 5-year periods; from 2014 to 2018 and from 2015 to 2019. What is so interesting about this list is that [Singapore](#) has scored the 4th position on this index while being ranked 23rd in terms of the total number of nanotechnology publications, which spotlights the superior quality of Singaporean scientists' research, working at the frontiers of nanotechnology and nanoscience. The presence of [Saudi Arabia](#) and [Iran](#) among leading industrial countries on the list is also considered a notable success.

Table 1. The top 15 countries in terms of their 5-year H-index score

Rank	Country	5-Year H-index	
		2015-2019	2014-2018
1	China	303	291
2	USA	290	292

3	Germany	173	170
4	Singapore	167	171
5	South Korea	163	161
<6	Australia	160	151
7	Japan	158	149
8	UK	156	159
9	Saudi Arabia	149	137
10	Canada	127	126
11	Switzerland	127	122
12	Iran	122	108
13	India	121	111
14	France	118	112
15	Spain	118	117

Table 2 shows the 10 highly cited nanotechnology papers of the last year; the top three have been published in the journals of Joule, Science [China](#)-Chemistry, and Nature Communications, respectively; receiving 789, 359, and 352 citations over the year.

A review of the hot nanotechnology papers of 2019 reveals that organic solar cells and enhancing their efficiency using non-fullerene acceptors have been the most widely studied topics of the year. This innovative type of acceptors has lately become the major focus of research in the development of bulk-heterojunction organic solar cells as a better alternative to fullerene acceptors. Furthermore, subjects such as 2D photocatalysts designed based on WO₃/g-C₃N₄ composite and the theoretical studies of nanofluids have been other hot topics of 2019.

Table 2. The top 10 highly cited nanotechnology papers of 2019

Title	Publication date	Journal
Single-Junction Organic Solar Cell with over 15% Efficiency Using Fused-Ring Acceptor with Electron-Deficient Core	Apr. 2019	Joule
Achieving over 16% efficiency for single-junction organic solar cells	Jun. 2019	Science China -Chemistry

Over 16% efficiency organic photovoltaic cells enabled by a chlorinated acceptor with increased open-circuit voltages	Jun 2019	Nature Communication
Ultrathin 2D/2D WO ₃ /g-C ₃ N ₄ step-scheme H ₂ -production photocatalyst	Apr. 2019	Applied Catalysis B-Environmental
New computational approach for exergy and entropy analysis of nanofluid under the impact of Lorentz force through a porous media	Feb. 2019	Computer Methods in Applied Mechanics and Engineering
Numerical approach for MHD Al ₂ O ₃ -water nanofluid transportation inside a permeable medium using innovative computer method	Feb. 2019	Computer Methods in Applied Mechanics and Engineering
Heat transfer behavior of nanoparticle enhanced PCM solidification through an enclosure with V shaped fins	Mar. 2019	International Journal of Heat and Mass Transfer
Tuning superconductivity in twisted bilayer graphene	Mar. 2019	Science
Single-Junction Polymer Solar Cells with 16.35% Efficiency Enabled by a Platinum(II) Complexation Strategy	Jul. 2019	Advanced Materials
Heat transfer simulation of heat storage unit with nanoparticles and fins through a heat exchanger	Jun. 2019	International Journal of Heat and Mass Transfer