

2017 Publication Report for Institute for Superconducting & Electronic Materials (ISEM)

Here is a brief report on ISEM publications in 2017. ISEM has **2%** university paid academic staff. The main features of this year's publications are briefly summarised as follows:

- **368** refereed journal papers, contributed **14.6%** to UOW total publications (**368/2525**), and compared to **273** last year, an increase by **35%**;
- Average impact factor (IF) for 368 papers is **7.43**, compared to **2.61** in 2010 and **6.47** in 2016 as shown in the plot of IF vs year from 2010 to 2017. It should be pointed that ISEM has 1/3 research in physics area where journals with IF > 3 are considered as high IF journal such as APL and PRB. Note also the IF values are based on the 2016 data as the data for 2017 is available in July;
- **73** papers with **IF > 10** in 2017, compared to just **1** with IF > 10 in 2010;
- Contributed **50%** of weighted Fraction Counts (WFC) in Nature Index Rank to UOW (**9.53/18.90**) in 2017;
- Contributed **45%** of top **1%** highly cited publications to UOW in 2013 – 2016 (**42/94**);
- Major contributor to the materials Science and Engineering, and Condensed Matter Physics of UOW ERA.



Figure: Average impact factor vs year for ISEM publications from 2010 to 2017

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Selected ISEM 2017 publications from total 368 which have average IF = 7.43

(Include those with IF > 10 (73) and PRB (6) and APL (10))

- 1) Y. S. Ang, S. Y. A. Yang, C. Zhang, Z. S. Ma, and L. K. Ang, "Valleytronics in merging Dirac cones: All-electric-controlled valley filter, valve, and universal reversible logic gate", *Physical Review B* 96, 245410 (2017); [IF: 3.836]
- 2) J. Brisbois, V. N. Gladilin, J. Tempere, J. T. Devreese, V. V. Moshchalkov, F. Colauto, M. Motta, T. H. Johansen, J. Fritzsche, O. A. Adami, N. D. Nguyen, W. A. Ortiz, R. B. G. Kramer, and A. V. Silhanek, "Flux penetration in a superconducting film partially capped with a conducting layer", *Physical Review B* 95, 094506 (2017); [IF: 3.836]
- 3) M. Z. Chen, L. N. Chen, Z. Hu, Q. N. Liu, B. W. Zhang, Y. X. Hu, Q. F. Gu, J. L. Wang, L. Z. Wang, X. D. Guo, S. L. Chou, and S. X. Dou, "Carbon-coated $\text{Na}_{3.32}\text{Fe}_{2.34}(\text{P}_2\text{O}_7)_2$ cathode material for high-rate and long-life sodium-ion batteries", *Advanced Materials* 29, 1605535 (2017); [IF: 19.791]
- 4) Y. Z. Chen, W. K. Pang, H. H. Bai, T. F. Zhou, Y. N. Liu, S. Li, and Z. P. Guo, "Enhanced structural stability of nickel-cobalt hydroxide via intrinsic pillar effect of metaborate for high-power and long-life supercapacitor electrodes", *Nano Letters* 17, 429 (2017); [IF: 12.712]
- 5) A. de Castro, A. F. Chirnes, A. Zavabeti, K. J. Berean, B. J. Carey, J. C. Zhuang, Y. Du, S. X. Dou, K. Suzuki, R. A. Shanks, R. Nixon-Luke, G. Bryant, K. Khoshmanesh, K. Kalantar-zadeh, and T. Daeneke, "A Gallium-based magnetocaloric liquid metal ferrofluid", *Nano Letters* 17, 7831 (2017); [IF: 12.712]
- 6) Q. Cao, M. X. Fu, D. P. Zhu, L. Cai, K. Zhang, G. L. Liu, Y. X. Chen, S. S. Kang, S. S. Yan, L. M. Mei, and X. L. Wang, "Enhancing s, p-d exchange interactions at room temperature by carrier doping in single crystalline $\text{Co}_{0.4}\text{Zn}_{0.6}\text{O}$ epitaxial films", *Applied Physics Letters* 110, 092402 (2017); [IF: 3.411]
- 7) F. Colauto, D. Carmo, A. M. H. de Andrade, A. A. M. Oliveira, W. A. Ortiz, and T. H. Johansen, "Anisotropic thermomagnetic avalanche activity in field-cooled superconducting films", *Physical Review B* 96, 060506 (2017); [IF: 3.836]
- 8) S. Dou, C. L. Dong, Z. Hu, Y. C. Huang, J. L. Chen, L. Tao, D. F. Yan, D. W. Chen, S. H. Shen, S. L. Chou, and S. Y. Wang, "Atomic-scale CoO_x species in metal-organic frameworks for oxygen evolution reaction", *Advanced Functional Materials* 27, 1702546 (2017); [IF: 12.124]
- 9) Y. H. Dou, D. L. Tian, Z. Q. Sun, Q. N. Liu, N. Zhang, J. H. Kim, L. Jiang, and S. X. Dou, "Fish gill inspired crossflow for efficient and continuous collection of spilled oil", *ACS Nano* 11, 2477 (2017); [IF: 13.942]
- 10) Y. H. Dou, L. Zhang, X. Xu, Z. Q. Sun, T. Liao, and S. X. Dou, "Atomically thin non-layered nanomaterials for energy storage and conversion", *Chemical Society Reviews* 46, 7338 (2017); [IF: 38.618]
- 11) X. C. Duan, J. T. Xu, Z. X. Wei, J. M. Ma, S. J. Guo, S. Y. Wang, H. K. Liu, and S. X. Dou, "Metal-free carbon materials for CO_2 electrochemical reduction", *Advanced Materials* 29, 1701784 (2017); [IF: 19.791]
- 12) S. Dutta, J. Kim, Y. Ide, J. H. Kim, M. S. A. Hossain, Y. Bando, Y. Yamauchi, and K. C. W. Wu, "3D network of cellulose-based energy storage devices and related emerging applications", *Materials Horizons* 4, 522 (2017); [IF: 10.706]
- 13) C. S. Fang, J. L. Wang, F. Hong, W. D. Hutchison, M. F. M. Din, A. J. Studer, J. A. Kimpton, S. X. Dou, and Z. X. Cheng, "Tuning the magnetic and structural transitions in TbCo_2Mn_x compounds", *Physical Review B* 96, 064425 (2017); [IF: 3.836]
- 14) H. Gao, T. F. Zhou, Y. Zheng, Q. Zhang, Y. Q. Liu, J. Chen, H. K. Liu, and Z. P. Guo, "CoS quantum dot nanoclusters for high-energy potassium-ion batteries", *Advanced Functional Materials* 27, 1702634 (2017); [IF: 12.124]
- 15) Q. F. Gu, J. A. Kimpton, H. E. A. Brand, Z. Y. Wang, and S. L. Chou, "Solving key challenges in battery research using in situ synchrotron and neutron techniques", *Advanced Energy Materials* 7, 1602831 (2017); [IF: 16.721]
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- 17) Y. Hashimoto, S. Daimon, R. Iguchi, Y. Oikawa, K. Shen, K. Sato, D. Bossini, Y. Tabuchi, T. Satoh, B. Hillebrands, G. E. W. Bauer, T. H. Johansen, A. Kirilyuk, T. Rasing, and E. Saitoh, "All-optical observation and reconstruction of spin wave dispersion", *Nature Communications* 8, 15859 (2017); [IF: 12.124]

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- 19) F. Hong, B. B. Yue, Z. X. Cheng, H. Shen, K. Yang, X. G. Hong, B. Chen, and H. K. Mao, "Pressure-enhanced light emission and its structural origin in Er:GdVO₄", *Applied Physics Letters* 110, 021903 (2017); [IF: 3.411]
- 20) Y. Y. Hou, J. Z. Wang, L. L. Liu, Y. Q. Liu, S. L. Chou, D. Q. Shi, H. K. Liu, Y. P. Wu, W. M. Zhang, and J. Chen, "Mo₂C/CNT: An efficient catalyst for rechargeable Li-CO₂ batteries", *Advanced Functional Materials* 27, 1700564 (2017); [IF: 16.721]
- 21) Z. Hu, Q. N. Liu, S. L. Chou, and S. X. Dou, "Advances and challenges in metal sulfides/selenides for next-generation rechargeable sodium-ion batteries", *Advanced Materials* 29, 1700606 (2017); [IF: 19.791]
- 22) S. C. Huang, M. Sanderson, Y. Zhang, and C. Zhang, "High efficiency and non-Richardson thermionics in three dimensional Dirac materials", *Applied Physics Letters* 111, 183902 (2017); [IF: 3.411]
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- 32) M. H. Khan, S. S. Jamali, A. Lyalin, P. J. Molino, L. Jiang, H. K. Liu, T. Taketsugu, and Z. G. Huang, "Atomically thin hexagonal boron nitride nanofilm for Cu protection: The importance of film perfection", *Advanced Materials* 29, 1603937 (2017); [IF: 19.791]
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- 35) C. S. Li, Y. Sun, F. Gebert, and S. L. Chou, "Current progress on rechargeable magnesium-air battery", *Advanced Energy Materials* 7, 1700869 (2017); [IF: 16.721]
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