

# Report on AAPPs-DPP 2022

2023.1.4 Mitsuru Kikuchi, AAPPs-DPP CEO

## 1. 6<sup>th</sup> DPP Annual Conference

Division of plasma physics (DPP) annually holding Asia-Pacific conference on Plasma Physics. The sixth annual conference (AAPPs-DPP2022) was held as remote online e-conference using Zoom system from October 9-October 14, 2022. Figure 1 shows Opening session speakers of AAPPs-DPP2022.



Figure 1 Opening session speakers of AAPPs-DPP2022

Table 1 Distribution of presentations

|                    | Plenary | Top. Pl | Invited | Oral | Poster      | Total |
|--------------------|---------|---------|---------|------|-------------|-------|
| Chandrasekhar      | 1       | -       | -       | -    | -           | 1     |
| Cross Disciplinary | 3       | 10      | 26      | 5    | 0           | 44    |
| Fundamental        | 4       | 14      | 27      | 14   | 5           | 64    |
| Basic              | 4       | 7       | 38      | 5    | 16          | 70    |
| Applied            | 4       | 11      | 34      | 6    | 7           | 62    |
| Laser plasma       | 4       | 7       | 37      | 20   | 4           | 72    |
| Space/Geomag       | 4       | 5       | 39      | 7    | 10          | 65    |
| Solar/Astro        | 4       | 4       | 31      | 24   | 9           | 72    |
| Magnetic Fusion1   | 4       | 6       | 35      | 28   | 7 (inc MF2) | 80    |
| Magnetic Fusion2   | 4       | 7       | 40      | 5    | -           | 56    |
| Poster Prize       | 1       | -       | -       | -    | -           | 1     |
| Closing            | 1       | -       | -       | -    | -           | 1     |
| Total              | 38      | 71      | 307     | 114  | 58          | 588   |

Table 1 shows distribution of 588 presentations among plenary, topical plenary, invited, oral, and poster for various sub-disciplines. AAPPs-DPP2022 consists of 38 plenary talks, 71 topical plenary talks, 307 invited talks, 114 oral talks, and 58 poster presentations. Cross-disciplinary session focused on Self-organize criticality led by PH Diamond, A. Das, Y. Kosuga having 44 presentations. Fundamental session is fundamental discipline common to all plasma physics area and had joint session with magnetic fusion plasma led by Hui Li, T-H Watanabe, JM Kwon having 64 presentations. Basic session discussed methods common to all plasma physics as well as small scale plasma research and dusty/quantum plasmas led by S. Bhattacharjee, A.A. Mamun, Y. Feng, K. Tanaka, CS Chang, G. Yun, K. Takahashi, R. Srivastava having 70 presentations. Applied session discussed applied plasma physics such as semi-conductor, medicine, agriculture, led by T. Murphy, SY Moon, S. Mukherjee, X. Tu, T. Watanabe,

T. Shao having 62 presentations. Laser plasma session discussed Laser-plasma interaction, Laser fusion, wake-field acceleration led by S. Fujioka, M. Chen, K. Lee, R. Gopal having 72 presentations. Space / Geomagnetism session discussed mostly space plasma physics and magnetic reconnection led by Q. Liu, T. Hada, A. Chian having 65 presentations. Solar/Astro session discussed solar plasma physics and astro plasma physics led by J. Cho, PF Chen, R. Matsumoto having 72 presentations. Magnetic Fusion session 1 (Core plasma) is led by M. Xu, K. Ida, YS Na, WL Zhong having 80 presentations. Magnetic Fusion session 2 (Edge plasma) is led by Y. In, K. Hanada, Ge Zhuang, YM Jeon having 56 presentations. Among them, 2021 S. Chandrasekhar lecture is given by Arnab Rai Choudhuri. We also celebrated 8 U40 winners and 6 U30 winners.

Table 2 Regional distribution of participants

| Region      | No  | Female | Speaker | Region     | No   | Female | Speaker |
|-------------|-----|--------|---------|------------|------|--------|---------|
| China       | 326 | 58     | 200     | Netherland | 4    | 0      | 2       |
| Japan       | 198 | 20     | 101     | Russia     | 4    | 0      | 1       |
| India       | 115 | 32     | 66      | Spain      | 3    | 0      | 1       |
| USA         | 110 | 7      | 74      | Romania    | 3    | 0      | 0       |
| Korea       | 58  | 2      | 24      | Czech      | 3    | 0      | 2       |
| France*     | 42  | 12     | 21      | Sweden     | 3    | 0      | 3       |
| Germany     | 29  | 4      | 14      | Portugal   | 3    | 0      | 2       |
| Australia   | 18  | 2      | 11      | Malaysia   | 2    | 1      | 0       |
| Belgium     | 17  | 4      | 9       | Singapore  | 2    | 0      | 0       |
| Taiwan      | 17  | 1      | 10      | Argentina  | 2    | 1      | 1       |
| England     | 14  | 5      | 8       | Thailand   | 2    | 0      | 0       |
| Italy       | 13  | 1      | 7       | Nepal      | 1    | 0      | 1       |
| Pakistan    | 11  | 3      | 11      | Kazakhstan | 1    | 0      | 0       |
| Chile       | 10  | 2      | 7       | Iran       | 1    | 1      | 1       |
| Swiss       | 7   | 0      | 4       | Austria    | 1    | 0      | 0       |
| Brazil      | 5   | 1      | 4       | Norway     | 1    | 1      | 1       |
| New Zealand | 4   | 0      | 2       | Total      | 1030 | 158    | 588     |

\* France include ITER organization

Table 2 shows distribution of region/countries and gender balance. This conference was 3rd e-conference held by AAPPs-DPP due to COVID-19 pandemic. Nonetheless, conference was great success to have 1030 participants all over the world while DPP also contributed online APPC-15 conference by 102 speakers (3 plenary, 94 invited, 5 contributed). We have regional distribution of China(326), Japan(198), India(115), USA (110), Korea(58), France(42), Germany(29), Australia(18), Belgium(17), Taiwan(17), England(14), Italy(13), Pakistan(11), Chile(10), Swiss(7), Brazil(5), New Zealand(4), Netherland(4), etc.

## Report on AAPPS-DPP 2022



While participation from APS (110) and EPS(143) are significant, we had participants from South American countries, Chile(10), Brazil(5), Argentina(2).

As for the gender balance, we had 158 female participants. Many female researchers joined from China and India, especially.

### 2. AAPPS-DPP S. Chandrasekhar Prize

DPP select S. Chandrasekhar Prize annually to recognize outstanding contributions to plasma physics since 2014. Chandrasekhar prize selection committee chaired by Wonho Choe selected 2023 laureate is Prof. Arnab Rai Choudhuri (IISc). Medal is sponsored by IPR/PSSI.



Fig. 2 2022 Chandrasekhar prize certificate, Medal from IPR/PSSI, Arnab Rai Choudhuri, office at University of Chicago, Selection committee chair Wonho Choe

### 3. AAPPS-DPP Plasma Innovation Prize

Year 2022 is fourth year of “AAPPS-DPP Plasma Innovation Prize” to recognize outstanding contributions to experimental and / or theoretical research in all fields of plasma applications, focusing on impacts on industry.

Plasma Innovation Prize selection committee chaired by R. Boswell informed there is no winner

in 2022.

### 4. AAPPS-DPP Young Researcher (U40) Award

DPP is recognizing annually young talented plasma researchers not more than 40 years old since 2016 as AAPPS-DPP Young Researcher Award (U40). U40 selection committee chaired by A. Sen selected 8 young talents; Yohei Kawazura (Fundamental, Tohoku Univ.), Swarniv Chandra (Basic, Government General Degree College at Kushmandi), Bhagirath Ghimire (Applied, University of Alabama in Huntsville), Liangliang Ji (Laser, SIOM), Xuzhi (Space, Peking University), Yang Guo (Solar, Nanjing University), Xue-Ning Bai (Astro, Tsinghua University), Kunihiko Ogawa (Magnetic Fusion, NIFS) as U40 winners at DPP2022. Their citations can be seen at <http://aappsdp.org/AAPPSDPPF/youngawardtable.html>.

Winners received cash prize 500USD, plates and certificate. Photos of winners, a certificate and plate to Xin Cheng are shown in Fig.3.



Figure 3 2022 AAPPS-DPP Young Researcher Awardees and certificate and plate of Xue-Ning Bai.

### 5. U30 Scientist and Student Award

DPP is recognizing young talented doctoral scientists/ students not more than 30 years old since 2018 as AAPPS-DPP U30 Doctoral Scientist / Student Award. This award is sponsored by IFE-Forum. 2022 U30 award selection committee chaired by K. Mima selected 2022 Winners; Young Dae Yoon (Basic, Pohang Accelerator Laboratory), Ke Feng (Laser, SIOM), Jie

## Report on AAPPS-DPP 2022

Feng (Laser, SJTU), Li Li (Space, Peking University), Kosuke Namekata (Solar/Astro, NAOJ), Ting Long (Magnetic Fusion, SWIP) (Figure 4). Winners received cash prize 300USD, plate, and certificate. Their citation can be seen at

<http://aappsdpp.org/AAPPSDPPF/U30awardtable.html>



Figure 4 AAPPS-DPP U30 Awardees

### 6. AAPPS-DPP2021 Poster Prize

DPP is recognizing significant poster presentation at the annual conference as AAPPS-DPP Poster Prize since 2018 for both students and young/senior researchers. Among 58 poster presentations, 9 posters (Swati S. Mishra, Sushanta Barman, Hui Wen, Kalyani Barman, Yue Dong, Zhenyu Kong, Sunidhi Singla, Yuji Kotani, Xiaobao Jia, Irem N. Erez, Liu Jiayan, Li Jingwei) were selected by the selection committee chaired by Zheng-Xiong Wang. Winners will receive certificate and a Springer book on plasma physics <http://aappsdpp.org/AAPPSDPPF/posteraward.html>.

The poster session has been done for full week and large number of participants visited poster Web site during the conference. Number of posters are smaller while we encouraging more discussion in poster session.

### 7. Springer Session

AAPPS-DPP's business includes "Publication of Journal and academic books" (Article 4). RMPP is official journal of AAPPS-DPP. Vice chair Z. Yoshida is editorial board member of "Springer Series in Plasma Science and Technology". On Oct. 9, we had Springer session on RMPP and Springer book program. Speakers are D. Nakajima (Springer), T. Hada (Guest Editor of Topical Collection: Nonlinear process in Solar-Terrestrial Plasmas), A. Tokuno (Springer), B. Wan (DPP chair), Z. Yoshida (DPP vice-chair).



**Springer Nature Exhibition:  
Introduction of RMPP and Springer Book  
@ AAPPS-DPP 2022**  
9 October 2022 (ZoomP)  
16:30-18:00 (JST) / 13:00-14:30 (IST) / 09:30-11:00 (CEST)  
03:30-05:00 (EDT) / 00:30-02:00 (PST)

**Time Table(JST)**

|             |                             |   |  |
|-------------|-----------------------------|---|--|
| 16:30-16:35 | Welcome                     |   |  |
| 16:35-17:10 | Journal Publishing Overview | <b>Daisuke Nakajima</b><br>Publisher, Journals<br>Mathematics, Physical & Applied Sciences<br>Springer Nature   |  |
| 17:10-17:15 | Guest Editor's Talk         | <b>Professor Tohru Hada</b><br>Kyushu University,<br>International Research Center for Space and Planetary Environmental Science<br>Guest Editor of Special Issue :<br>Nonlinear Processes in Solar-Terrestrial Plasmas<br>Associate Editor of RMPP:<br>D4 Space/Geomagnetic Plasma Physics |  |
| 17:15-17:25 | Book Program Overview       | <b>Akiyuki Tokuno</b><br>Editor, Books<br>Science<br>Springer   |  |
| 17:25-17:35 | Guest Author's talk 1       | <b>Professor Baonian Wan</b><br>Chief Scientist, Institute of Plasma Physics,<br>Chinese Academy of Sciences<br>Chair, AAPPS-DPP<br>Book Author: Man-Made Sun—<br>Experimental Advanced Superconducting Tokamak (EAST) Fusion Reactor. Springer Singapore (2021)                            |  |
| 17:35-17:45 | Guest Author's talk 2       | <b>Dr. Zensho Yoshida</b><br>Director General, National Institute for Fusion Science<br>Book Series Editor:<br>Springer Series in Plasma Science and Technology<br>Book Author: Nonlinear Science—<br>The Challenge of Complex Systems.<br>Springer Berlin, Heidelberg (2010)               |  |
| 17:45-18:00 | Q&A                         |   |  |

Springer

### 8. RMPP Journal

RMPP is review journal specialized to plasma physics (see Appendix). The 1<sup>st</sup> volume (2017) published 10 articles. The 2<sup>nd</sup> volume (2018) published 9 articles and 3<sup>rd</sup> volume (2019) published 15 articles, 4<sup>th</sup> volume (2020) published 12 articles, 5<sup>th</sup> volume (2021) published 13 articles. RMPP board decided to increase number of publications in volume 6 (2022) and published number of papers reached 41 papers.

| 1st Author             | Reference | Article Type   | Collection  |
|------------------------|-----------|----------------|-------------|
| Golam M. Hossain       | 1         | Review         | QP-2(B)     |
| Katsumi Ida            | 2         | Review         | Regular(F)  |
| Abdul Mannan           | 3         | Review         | QP-3(B)     |
| Gert Brodin            | 4         | Review         | QP-4(B)     |
| Amar P. Misra          | 5         | Review         | QP-5(B)     |
| Sharmin Sultana        | 6         | Review         | QP-6(B)     |
| Fernando Haas          | 7         | Special Topics | QP-7(B)     |
| Fang Shen              | 8         | Review         | Regular(SA) |
| Muhammad Bilal         | 9         | Review         | Regular(MF) |
| P. Rodriguez-Fernandez | 10        | Review         | Regular(F)  |
| W. Masood              | 11        | Review         | QP-8(B)     |
| Linghua Wang           | 12        | Review         | U40-5(SG)   |
| Keigo Takeda           | 13        | Special Topics | U40-6(A)    |
| Zheng-Xiong Wang       | 14        | Special Topics | U40-7(MF)   |
| Meng Zhou              | 15        | Review         | U40-8(SG)   |
| Sudeep Bhattacharjee   | 16        | Special Topics | Regular(B)  |
| Pankaj Attri           | 17        | Review         | BA21-1(A)   |
| Hyeon K. Park          | 18        | Chandra        | Chandra-7   |
| Siming Liu             | 19        | Review         | Regular(SA) |
| S. Ratynskaia          | 20        | Review         | DP-3(B)     |
| Akanksha Gupta         | 21        | Review         | BA21-2(B)   |
| Yasuhiro Nariyuki      | 22        | Review         | NLST-1(SG)  |
| Ke Jiang               | 23        | Special Topics | DP-4(B)     |
| Hajime Urano           | 24        | Special Topics | MF21-1(MF)  |
| L.G. Eliseev           | 25        | Special Topics | MF21-2(MF)  |
| Nengchao Wang          | 26        | Special Topics | MF21-3(MF)  |
| Zhongwei Liu           | 27        | Review         | BA21-3(A)   |
| Pintu Bandyopadhyay    | 28        | Special Topics | DP-5(B)     |
| Tatanobu Amano         | 29        | Review         | U40-9(SA)   |
| Ji Hyun Shin           | 30        | Special Topics | Regular(B)  |
| Uwe Czarnetzki         | 31        | Review         | Regular(A)  |
| Jeongwoo Lee           | 32        | Review         | Regular(SA) |
| Santiago V. Dominguez  | 33        | Review         | NLST-2(SG)  |
| Abraham C.-L. Chian    | 34        | Special Topics | NLST-3(SG)  |
| Souvik Das             | 35        | Review         | Regular(SG) |
| Masaru Hori            | 36        | Innovation     | PI-1 (A)    |
| Muhammad A. Zafar      | 37        | Review         | Regular(A)  |
| Ting Sun               | 38        | Review         | HEDP-1(L)   |
| Taiichi Shikama        | 39        | Review         | MF21-4(MF)  |
| Suping Duan            | 40        | Review         | KAW-1       |
| Tulasi N. Parashar     | 41        | Review         | NLST-4(SG)  |

## 9. Membership Status

AAPPS-DPP started from 92 founding members in 2014. As of Oct 30, 2020, DPP has 2011 members all over the world. It took 6 years for members to reach two thousands. While it might be difficult to attract all plasma physicists in Asia-Pacific region, there is huge opportunity to increase membership from China, Japan, Korea, Australia as well as ASEAN region. Members of BoD have to take a leadership in encouraging membership registration.

While AAPPS-DPP works mainly at Asia Pacific region, there are large number of US, European and South American members and attracting participation from all over the world.

**Table 3 Regional Member distribution (by Rui Ding)**

| Region          | '14.7.24 | '20.10.30 | '21.11.05 | '22.11.17 |
|-----------------|----------|-----------|-----------|-----------|
| 1. India        | 856      | 793       | 1197      | 1183      |
| 2. China        | 110      | 440       | 477       | 598       |
| 3. Japan        | 97       | 308       | 304       | 334       |
| 4. Korea        | 36       | 123       | 134       | 136       |
| 5. US           | 11       | 70        | 91        | 135       |
| 6. Australia    | 30       | 48        | 52        | 55        |
| 7. Taiwan       | 21       | 35        | 38        | 43        |
| 8. Nepal        | 1        | 26        | 30        | 29        |
| 9. France       | 1        | 25        | 33        | 42        |
| 10. Thailand    | 14       | 18        | 19        | 20        |
| 11. Pakistan    | 0        | 13        | 12        | 16        |
| 12. Germany     | 0        | 13        | 27        | 34        |
| 13. Malaysia    | 2        | 12        | 14        | 14        |
| 14. UK          | 0        | 12        | 23        | 28        |
| 15. Italy       | 0        | 11        | 17        | 22        |
| 16. Philippines | 6        | 9         | 9         | 9         |
| 17. Belgium     | 0        | 9         | 15        | 16        |
| 18. Indonesia   | 0        | 8         | 5         | 5         |
| 19. Iran        | 0        | 5         | 5         | 6         |
| 20. Vietnam     | 0        | 4         | 4         | 4         |
| 21. Singapore   | 4        | 4         | 5         | 5         |
| 22. Russia      | 0        | 6         | 9         | 11        |
| 23. Bangladesh  | 0        | 3         | 3         | 3         |
| 24. Netherland  | 0        | 3         | 3         | 2         |
| 25. Lao PDR     | 0        | 2         | 2         | 2         |
| 26. Austria     | 0        | 2         | 3         | 3         |
| 27. Canada      | 0        | 1         | 1         | 1         |
| 28. Czech       | 0        | 1         | 1         | 2         |
| 29. Egypt       | 0        | 1         | 1         | 1         |
| 30. Ireland     | 0        | 1         | 1         | 1         |
| 31. Israel      | 0        | 1         | 1         | 0         |
| 32. Myanmar     | 0        | 1         | 1         | 1         |
| 33. Norway      | 0        | 1         | 0         | 1         |
| 34. Spain       | 0        | 1         | 2         | 2         |
| 35. Switzerland | 0        | 1         | 2         | 7         |
| 36. Sweden      | 0        | 0         | 1         | 2         |
| 37. Slovakia    | 0        | 0         | 1         | 1         |
| 38. SaudiArabia | 0        | 0         | 1         | 0         |
| 39. Romania     | 0        | 0         | 2         | 2         |
| 40. Portugal    | 0        | 0         | 1         | 2         |
| 41. NewZealand  | 0        | 0         | 3         | 5         |
| 42. Argentina   | 0        | 0         | 0         | 2         |
| 43. Brazil      | 0        | 0         | 0         | 1         |
| 44. Chile       | 0        | 0         | 0         | 3         |
| 45. Columbia    | 0        | 0         | 0         | 1         |
| 46. Hungary     | 0        | 0         | 0         | 2         |
| Total           | 1,212    | 2,011     | 2,553     | 2,792     |

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## Report on AAPPS-DPP 2022



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### Appendix: Reviews of Modern Plasma Physics

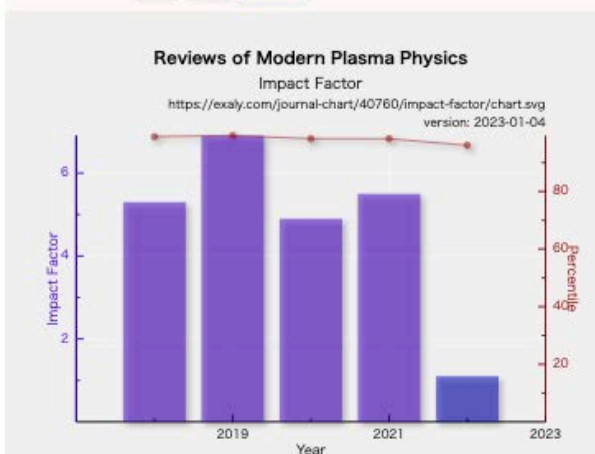
Exaly.com provided useful statistics of RMPP at <https://exaly.com/journal/40760/reviews-of-modern-plasma-physics>. It is nice to see RMPP is ranked as 1<sup>st</sup> out of 14 plasma physics journals with exaly impact factor=5.5.

#### Reviews of Modern Plasma Physics

Physics, Plasma Physics



Selected Period: 1970 - 2021 Re-Draw



The graph shows the changes in the impact factor of **Reviews of Modern Plasma Physics** and its the corresponding percentile for the sake of comparison with the entire literature. Impact Factor is the most common scientometric index, which is defined by the number of citations of papers in two preceding years divided by the number of papers published in those years.

#### How Influential is Reviews of Modern Plasma Physics?

**Reviews of Modern Plasma Physics** is the 1<sup>st</sup> out of 14 *Plasma Physics* journals. This means the journal is among the top 8% in the sub-discipline of *Plasma Physics*. This Journal is the 114<sup>th</sup> out of 2,076 *Physics* journals. This means the journal is among the top 6% in the discipline of *Physics*. This Journal is the 603<sup>rd</sup> out of 12,155 *Physical Sciences* journals. This means the journal is among the top 5% in the science branch of *Physical Sciences*.