プラズマ物理部門の現状

2015.07.14 AAPPS 委員会 （物理学会会議室）
菊池　満 (物理学会, DPP Chair),
白谷正治（応物学会, DPP Vice Chair）

1. 報告事項

・ 昨年 2014 年 4 月 26 日に開催された AAPPS 委員会で AAPPS 傘下のプラズマ物理部門の設立と、初期活動報告を行った。
・ 更に、AAPPS 会長の Swan Kim 教授の依頼により本年 2 月 6-7 日にソウルで開催された第 31 回 AAPPS 理事会では Annual Report of Activity of Division of Plasma Physics（年報：添付１）を作成し報告を行った。
・ 年報に記載されているように、1 月 19 日に設立が認められた後は、執行部の選出、国際名誉助言委員会の設立、ホームページの立ち上げ、会員募集（会費無料)、メールサービス、ロゴの決定、協賛学会の支援、プラズマスクール活動の支援、DPP の口座設立、などを行うとともに、チャンドラセッカル賞の設立を行った。
・ 会費無料で運営を行うものの、AAPPS 理事会には会計報告 (3 ページ目) を行った。現状個人負担によっており次回 APPC 参加費収入から DPP への資金貢献を依頼したところ、理事会からは、本来予算は独立会計であるが、部門設立を推進する立場から 2000 ドルの支援があり DPP 口座に入金されている。プラズマ物理部門は、日本がリーダーシップを取って設立したものであることから、AAPPS のメンバー学会である物理学会や応物学会からも些少の応援資金をお願いしたい。
・ チャンドラセッカル賞については、中国の西南物理研究所傘下の会社とスポンサー契約を結び、第 1 回チャンドラセッカル賞選考委員会 (Namkung 委員長) を設置し、厳正な審査を行い、一丸節夫東大名誉教授を選考した（プレス：添付２)。すでに賞金は本人に渡してあり、授賞式は APPC-13 で行い、IPR が製作するメダルと賞状を手渡すことにしている。
・ 現在、DPP 論文誌（レビュー論文誌）の設立に向けて IOPP と協議を 1 年以上続けており、MOU (Memorandum of Understanding)のドラフトができて詳細を詰めている段階である。一方で、８０名程度の編集ボード委員候補をアジア・太平洋地区を中心に選出し、すでに 70 名が編集ボード委員就任に同意している。また、６名の分野別編集主任を中心に執筆予定者の指名を行い、執筆の合意を取り付けつつある。
・ AAPPS 便りとして物理学会誌の 7 月号に DPP 活動報告が掲載されることとなった（添付３)。
・ 課題：APPC-13 に向けて、招待講演者リストの作成をするべく、AIP の組織委員長 (Halina Rubinsztein-Dunlop)に早急なプログラム委員会の立ち上げとプラズマ物理部門による主体的な運営(AAPPS ByLaw)を打診するも全く反応がない。APPC- 13 担当の DPP Vice Chair (ANU)もお手上げの状況である。なんとかして頂ければ。残念ながら、APPC はまだ良く知られていない会議であることから早急に招待講演者リストを作成して、当該分野の研究者に興味を持ってもらい予定に入れないと参加者数が激減する可能性がある。すでに来年 7 月に予定されている ICPP には 200 名近い招待講演者が決まっており、危機的な状況である。

以上

31st AAPPS Council Meeting, Feb. 6-7, Seoul, Korea

Annual Report of Activity of Division of Plasma Physics

2015.2.7 AAPPS-DPP Chairman, Mitsuru Kikuchi

[1] Introduction

On behalf of the entire DPP members, DPP chair would like to express sincere appreciation to the AAPPS council for the approval of the foundation of the division of plasma physics.

[2] Historical records of activities

- Jan.19: Foundation of DPP was approved at 29th AAPPS Council Meeting at Taipei
- Feb.1: DPP HP is open. By Law of DPP is attached in Appendix-1.
- Feb 27 : Vice Chairs (D0: Liu chen, D1:A. Sen, D2: M. Shiratani, D3: ZM Sheng, D4: D. Ryu, Next APPC: M. Hole) approved by founders.
- March 3: First ExCom by e-mail (Minutes Appendix-2)
- March 5: APS-DPP and worldwide key plasma physicists congratulate DPP formation.
- March 6: DPP member registration page open.
- March 20: ExCo start discussion of S. Chandrasekhar Prize of Plasma Physics.
- March 28: DPP decided to co-sponsor the West Lake Symposium (WLS) as a first co-sponsored conference led by Prof. Liu Chen (Report in DPP news 2014.05.12)
- April 9: DPP formed I-HAC (International Honorary Advisory Committee) (Predhiman Kaw Chair)
- April 17: ExCo charged I-HAC on the foundation of S. Chandrasekhar Prize of plasma physics.
- April 22: DPP Mailing list (aapps.dpp@ml.jaea.go.jp) service is started to deliver DPP news.
- May 3: DPP co-sponsored APTWG (Asia-Pacific Transport Working Group) Conference (Report in DPP news 2014.09.09)
- May 8: I-HAC reported to DPP Chair that IHAC have the consensus recommendation on the foundation of the S. Chandrasekhar Prize of Plasma Physics.
- June 16: DPP co-sponsored APPTC (Asia-Pacific Plasma Theory Conference) (Report in DPP news 2014.11.28).
- June 16: DPP co-sponsored ASEAN school on plasma and nuclear fusion (Report in DPP News 2015.01.15).
- June 19: DPP co-sponsored East-Asia School and Workshop (Report in DPP news 2014.09.09).
- July 15: Call for support ICPSA2014.
- July 17: DPP LOGO is decided in ExCom.
- July 29: ExCo endorsed the agreement of sponsorship of 2014 S. Chandrasekhar Prize to Southwestern Institute of Physics in China (See Page 25 for the sponsorship agreement).
- July 30: Call for S. Chandrasekhar Prize of Plasma Physics announced.
- Aug 8: Membership status announced. Total 1239 members.
- Aug.22: Job opportunity informations.
- Aug.26: DPP endorsed Asian Winter School (by Sokendai) (Report in DPP News2014.12.11).
- Sep. 26: Prof. C. Pan joined to I-HAC (http://aappsdpp.org/AAPPSDPPF/committees.html).
- Nov. 25: Member distribution is announced. Total 1258 members.
- Dec. 1: Report on Plasma Conference 2014 announced (DPP News 2014.12.1).
- Dec. 22: Prof. S. Ichimaru as 1st Laureate of S. Chandrasekhar Prize of Plasma Physics announced.
- Jan 3: Information from APS-DPP chair on FESAC report posted.
- Jan.15: Announcement of West Lake Symposium.
- Jan 16: Report on A3 foresight WS on Spherical Torus (DPP News2015.01.16).
- Jan.30: Change in ExCo membership (Lin-Ni Hau change to vice chair for Space plasma physics, Tawatchat Onjun (Thailand) assigned as Chief division secretary representing ASEAN region)

[3] Key Activities

1. Committees

1.1 Executive Committee: Decision body

1.2 I-HAC: Advisory body

2. Membership

- Total 1258 (Nov. 25) see Table.
- PSSI (Plasma Science Society of India) joined DPP.
- We asked Chinese DPP (X. Wang: chair), Korea DPP Chair (W. Choe: chair) to join DPP. But they are still under discussion.

Table Membership distribution

	Founders	Members	Total
Australia	11	21	32
Beijing	22	91	113
India	10	835	845
Japan	24	104	128
Korea	9	29	38
Malaysia	1	3	4
Philippines	1	5	6
Taipei	5	16	21
Thailand	2	12	14
Singapore	4	0	4
Hong-Kong	1	0	1
Nepal	1	18	19
Oman	0	1	1
USA	1	19	20
Canada	0	1	1
France	0	1	1
UK	0	1	1
Germany	0	4	4
Italy	0	1	1
Czech	0	1	1
Portugal	0	1	1
Chili	0	1	1
Rwanda	0	1	1
Total	92	1166	1258

Issue:
[1] Among many member societies of AAPPS, we do not have members from New Zealand, Mongol, some ASEAN countries (Vietnam, Cambodia, Brunei, Myanmar, Indonesia, Lao).
[2] In Japan, for example, we have >1000 plasma scientists among which only 120 are DPP members. We have to attract more peoples to join. AAPPS council may help DPP by asking member society to increase participation to the division.

3. AAPPS-DPP HP:

DPP HP is operated voluntary work by Dr. Nagai. Home, governance, committee, contact, links, meetings, publications, prize& awards, join AAPPS-DPP, education, job opportunity, upcoming meetings. Excellent work!

Issue:
[1] DPP is a part of AAPPS. More links from AAPPS HP on DPP activities, say on S. Chandrasekhar Prize announcement. AAPPS HP to be more active. Information on recent council meetings is missing. Also contact point is still Dr. Nagai.
[2] We have asked President Swan to give us message from the AAPPS president to the DPP including his photo (March 17 and reminders at KPS-DPP (April 24) and April 30). We still do not have his message. We also asked vice president Prof. Gui Lu Long to transfer this message to the President as of July 24, 2014. We also sent DPP page to the AAPPS HP secretary created by Dr. Nagai on March 10. We only see link to our DPP HP from AAPPS HP. I hope AAPPS HP will have DPP page as well similar to APS HP.

4. DPP mailing service:

Members receive DPP news such as meeting information, call for support, DPP ExCo decisions, Job information, etc. WE use JAEA mailing service system.

5. DPP LOGO:

We have decided DPP LOGO.

6. Conference Co-sponsor:

DPP co-sponsor/endorse conferences (WLS, APTWG, APPTC) and schools (EAST Asian school, Asian Winter School, ASEAN school). We rely on voluntary contribution from members.

7. S. Chandrasekhar Prize of Plasma Physics (DPP Prize):

31st AAPPS Council Meeting, Feb. 6-7, Seoul, Korea

ExCo proposed the foundation of S. Chandrasekar Prize of plasma physics, which was unanimously supported by the I-HAC. Three laureates will receive certificate, medal, and cash prize at the forthcoming APPC-13 in Australia.

DPP and SWIP (Chengdu Tongchuang Applied Plasma Technology Center) concluded the 2014 sponsorship agreement to contribute 5000$ (see page 25).

Issues:

- We asked S. Chandrasekhar laureates to give invited talks. In APPC-12, we have 4 plenary speakers from plasma physics. DPP want to propose APPC-13 organizing committee to include all 3 S. Chandrasekhar Prize laureates in the plenary list.

8. DPP account:

AAPPS-DPP has 2 bank accounts in Mizuho bank in Japan by the name of AAPPS-DPP. Yen account: 1319456, Dollar account: 9118832. These accounts are used for transfer of cash prize of S. Chandrasekhar Prize from SWIP to DPP and then to the laureate.

Issues:

We created DPP account in Japan, while there is no financial basis for DPP activity, yet. Most important resources should be conference fee. I would like to ask AAPPS council to make operation of the DPP part of the next APPC shall provide financial output to DPP operation.

9. Preparation for Next APPC:

DPP want to actively organize plasma physics program and attract more participants in the next APPC according to By Law of Division of AAPPS.

Issues:

[1] There is no financial basis for DPP activity, yet. Most important resources should be conference fee. I would like to ask AAPPS council to make operation of the DPP part of the next APPC shall provide financial output to DPP operation.

[4] Budget Accounting in 2014-Feb. 2015.

- There is no member fee at this moment.
- DPP is operated by the voluntary contributions and the sponsor agreement.

Item	Income	Expenditure	Sum	Note
DPP Domain name	1000Yen*	1000Yen	0	aapps.dpp.org
DPP-HP	0	0	0	http://aappsdpp.org/AAPPSDPPF/index.html
Mailing server	-	-	-	JAEA mailing system
DPP account ($)	4980$		0	S. Chandrasekhar prize (from SWIP) Feb. 3
Cash transfer		4980$	0	Feb. 4 to Laureate account
DPP account (Yen)	10000Yen*			For handling charge
Handling charge		4000Yen		Receive $ cash (Feb. 3)
Handling charge		540Yen	5460Yen	Cash transfer to 1st Laureate (Feb. 4)
Train fee	7500Yen*	7500Yen	0	Press release at MEXT (Tokyo) (Dec. 22)
1st ASEAN school	-	-	-	Two lecturers from JAEA and ILE Osaka

*: Donation

10. Forthcoming action

10.1 DPP Journal: We are working on creating new Asia-Pacific DPP journal, called "Reviews of Modern Plasma Physics". We have 6 Chief Editors and 5 Associate Editors and many editorial board members. We intend to co-publish with some publisher.

Appendix-1:

ByLaw of DPP (HP: http://aappsdpp.org/AAPPSDPPF/governance.html)

Article 1: Name

This Division of the Association of Asia Pacific Physical Societies shall be called the Division of Plasma Physics. Its abbreviation shall be AAPPS-DPP.

Article 2: Objective

The objective of the Division shall be the advancement and dissemination of the knowledge, understanding and applications of plasmas of natural and laboratory origin.

Article 3: Membership

Members of the Division shall consist of Scientists wishing to have membership of this division subject to recommendation by a members (initially core member). Member shall be responsible to inform one's name, affiliation, E-mail address to the secretary of the Division Secretary. Division Membership may be removed in case of one's request or loss of long-term communication or one's misconduct judged by the Executive Committee.

Article 4: Executive Committee

4.1 Governance

The Division shall be governed by an Executive Committee (hereafter called EXCO), which shall have general charge of the affairs of the Division.

4.2 Composition of EXCO

The EXCO shall consist of the Division Officers and the EXCO secretary.

4.3 EXCO meeting

EXCO shall have the EXCO meeting at least once a year, either by face or by other means including E-mail. At the APPC, EXCO shall have the face-to-face EXCO meeting.

4.4 Role of EXCO Secretary

The EXCO secretary shall arrange the EXCO meeting and minutes of the EXCO meeting.

Article 5: Division Officers

5.1 Officers of the Division

The Officers of the Division are the Chair, Vice Chairs, and Division Secretaries.

5.2 Terms of Division Officers

The term of Division Officers is 3 years with possible extensions if one's role as a Division Officer is changed.

5.3 Duties of the Chair

The Chair shall represent the Division and shall chair the EXCO meeting.

5.4 Vice Chairs

5.4.1 Number of Vice Chairs

There shall be at least six Vice Chairs, which will be responsible for the major subjects of this Division, i.e. 1) Fundamental plasma physics, 2) Basic Plasma Physics, 3) Applied Plasma Physics, 4) High intensity laser plasma science, 5) Space, solar and astro plasmas. 6) Local arrangement of next APPC and the general matter of Division. Number of the Vice Chair is subject to the progress of the Division.

5.4.2 Duties of the Vice Chairs

- Each Vice Chair in charge of each subject shall be responsible for matters in each major subject. - The Vice Chair in charge of the next APPC shall be responsible for the local arrangement of the next APPC session and the communication to the local organizing committee.

5.5 Division Secretaries

These shall be at least two Division Secretaries, Chief Division Secretary and Division Secretary for General Affair. Division Secretaries shall be responsible for the membership management, information dissemination to the Division members and other matters as necessary.

Article 6: Standing Committees

1. Honorary Advisory Committee

The Division Chair may form an honorary advisory committee, which may consist of distinguished scientists in the fields and former division chairs related to this Division for advice to the Division management.

2. Program Committee

The Program Committee shall be responsible for the plasma science program for the APPC meeting.

3. Other Standing Committees

ExCo may form necessary standing committees as necessary.

Appendix-2 :

First Executive Committee (ExCo) by E-mail (February 27, 2014)

1. For the moment, we do not charge membership.

2. Chairman will send e-mail all participants of APPC-12 on the foundation of DPP and also free to join the DPP.

3. Dr. Imadera volunteered to work as secretary for member registration.

4. Way of registration for APPC-12 participants is send his/her will to join to AAPPS-DPP by e-mail with necessary informations to aapps.dpp@gmail.com.

5. For peoples other than APPC-12 participants, tentative ByLaw ask two persons to recommend. But it is much simpler for one member to send e-mail to aapps.dpp@gmail.com. recommending new members.

ByLaw is changed to one person recommendation.

6. Required informations for registration:

1. Name (First, Middle, Family), 2. Salutation, 3. Affiliation, 4. Position, 5. E-mail,

6. Fields of interest: D-0, D-1, D-2, D-3, D-4, D-5,

7. I am currently a student (Baccalaureate, Master, Doctoral) Yes or No

7. Chairman will inform to APS DPP chair, EPS DPP chair and some leading figures on the formation of DPP.

Following are listed by Vice Chairs and Chair

Australian Institute of Physics : Prof. Rob Robson

The chair of the KPS DPP Prof. Seung Jeong Noh of Dankook University

The Chair of the Chinese physical society DPP Prof. Ding Li

The Chair of the JPS- DPP Prof. H. Yoneda

President of PSSI (Plasma Science Society of India) Prof. A.N. Sekar Iyengar

International West Lake Symposium on Laser Plasma Interactions at Hangzhou, China

M.Y. Yu (ZJU), H.-C. Wu (ZJU), Zheng-Ming Sheng (SJTU), and L. Chen (ZJU)

In April 21-25, 2014, the 8th International West Lake Symposium on Laser Plasma Interactions (IWLS-LPI) was held at the Zhejiang Hotel hidden in the beautiful hills next to the West Lake in Hangzhou, China. There were more than 120 participants from China, France, Germany, India, Italy, Japan, Portugal, Russia, UK, USA, etc. representing more than 27 institutions worldwide. More than 60 oral talks and posters were presented.

The West Lake Symposium series is organized and hosted annually by the Institute for Fusion Theory and Simulation, Zhejiang University for the purpose of exchanging ideas in a relaxed atmosphere on topics ranging from magnetically confined fusion plasmas, laser plasma interactions, and space plasmas to computational plasma physics. This year, the Symposium, co-sponsored by the newly established Division of Plasma Physics, Association of Asian-Pacific Physical Societies (AAPPS-DPP), is focused on "Laser Plasma Interactions". Most presentations in the Symposium are on the interaction of relativistic high-intensity lasers with plasmas, including the generation of ultrashort wavelength light sources, ultrafast and high flux electron and ion beams, ultraintense magnetic fields, etc. These topics are consistent with the current main interests in relativistic laser-plasma interactions, which may find applications in laser-driven fusion, laboratory modelling of astrophysical phenomena, novel and compact radiation and beam sources, medical diagnostics and tumor treatment, etc. The use of lasers can greatly reduce the overall size of the devices in the applications and is therefore practical as well as economical interest. The 30-minute oral talks were ergonomically arranged, leaving ample time for stressless discussions and interchange of ideas. The Symposium also contains several informative 50 minute review talks that cover the up-to-date research topics as well the relevant basic physics. There were also many fruitful after-session discussions among participants.

From the author lists of the works presented, one can also see that there exists a great deal of collaborations among the researchers from China and other countries (especially Germany: involving more than 6 Max Planck Institutes, Helmholtz Centers, and universities), as well as from different institutions within China. The Symposium should result in an enhancement of this welcoming trend, which we look forward to seeing in the next West Lake Symposium.

The agenda, participant list, PPT of talks, and other information on the 8th IWLS-LPI can be found at http://ifts.zju.edu.cn/lpi/.

AAPPS-DPP News 2014.05.30

Establishment of Division of Plasma Physics (AAPPS-DPP)

AAPPS-DPP chair, M. Kikuchi (JAEA)

1. Introduction

AAPPS (Association of Asia Pacific Physical Societies) is formed for the promotion of the advancement of knowledge in physics in 1990. Asia Pacific Region is growing rapidly in both economically and scientifically. But the scientific organization in this region still has large room for improvement. To this end, AAPPS is an important opportunity for the physicists and engineering scientists similar to American Physical Society (APS) and European Physical Society (EPS). In the early phase of AAPPS activities, Prof. H. Takabe as one of AAPPS council members takes an important leadership with financial and technical supports by NIFS (Director O. Motojima and Prof. H. Yamada), by SJTU (President Jie Zhang) and by Osaka University to coordinate plasma physics activities as reported in the AAPPS Bulletin Vol 17 No. 3 (June 2007) on the 1st Key person Meeting for Establishment of DPP in AAPPS, and in the AAPPS Bulletin Vol 17, No. 4 (August, 2007) on School of Plasma Physics at Shanghai Jiao Tong University as DPP Activity in the AAPPS, while DPP is not formed formally at that time.

APPC-12 in July 14-19, 2013 hosted by AAPPS, JPS, JSAP is a successful physics conference having 1290 participants among which > 300 are from plasma sciences. Plasma science program (D) in APPC-12/ASEPS consists of (D1) Plasma Physics, (D2) Plasma Processing, (D3) High Intensity Laser Plasma Science, and (D4) Space, Solar and Astro Plasmas. In the APPC-12/ASEPS, plasma science had 4 plenary speakers, 41 invited speakers, 46 oral speakers, and 215 poster presentations. In total, 306 presentations were made. Every morning, we had more than 50 poster papers and the intensive discussions are made during the presentation. In every afternoon, we have two parallel oral sessions, where 41 invited talks and 46 oral talks were given, which included summary talks in 4 areas (D1, D2, D3, D4). We appreciate all plenary, invited, oral, poster participants for their excellent contributions. We especially appreciate enormous efforts made by the summary speakers to collect important works. In this sense, we believe that the plasma science program in APPC-12/ASEPS is a great success.

In order to sustain and to enhance such scientific activities, it is effective to establish a Plasma Physics Division under the Association of Asia Pacific Physical Society (AAPPS). On Nov.15 2013, APPC-12 LOC chair Prof. Nagamiya and PC chair Prof. M. Sasao asked me to prepare proposal to create Division of Plasma Physics to be approved at AAPPS council. Since then, we started assembling DPP supporters from Asia-Pacific region working in all plasma physics such as fundamental and basic plasma physics, applied plasma physics, Laser plasma, Astro/Solar/Spaces plasma including high temperature plasma for fusion research.

We had 92 DPP supporters from 13 member societies (The Physical Society of Japan/The Japan Society of Applied Physics: 24, The Chinese Physical Society: 22, Australian Institute of Physics: 11, The Korean Physical Society:10, Indian Physics Association:10, The Physical Society located in Taipei:5, Institute of Physics, Singapore: 4, The Physical Society of Hong Kong: 1, Malaysian Institute of Physics:1, Thai Institute of Physics: 2, Physical Society of Philippines: 1, Nepal Physical Society:1). From AAPPS By Law on Division formation asked to select DPP chair and we had open discussion and M. Kikuchi is selected by >50% strong support by the founders.

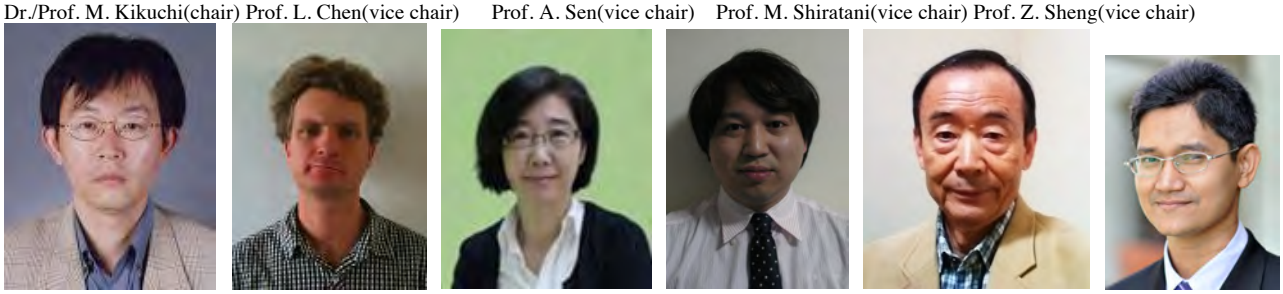
DPP proposal dated January 10 is submitted to AAPPS President Prof. Swan Kim and is approved at the AAPPS council in Taipei on January 19-20. DPP web is opened on Feb. 1, 2014 at http://aappsdpp.org/AAPPSDPPF/index.html. DPP chair nominated 6 vice chairs and approved by the DPP founders on Feb. 27. In addition, we appointed chief DPP secretary, who is in charge of education and woman in plasma physics. A./Prof. K. Imadera volunteered as DPP secretary and former executive director of JPS, Dr. H. Nagai also volunteered as DPP-HP secretary in charge of information dissemination. The first ExCo meeting is held on March 3 by

e-mail and concluded 7 decisions, whose minutes can be seen at http://aappsdpp.org/AAPPSDPPF/minutes.html. Foundation of DPP is announced to APS-DPP and EPS-DPP colleagues and is well received at http://aappsdpp.org/AAPPSDPPF/news/cogratulatory.pdf. We started call for member registration from March 6 at http://aappsdpp.org/AAPPSDPPF/join.html with the member fee is free for the moment. So far we have 332 members (as of April 30) are registered from 14 member societies and one non-member societies. Major member registration comes from Japan, China, Korea, India, Australia, Thailand, but also some from other societies and US. The operation of DPP activities is based on voluntary works such as Home Page development, member registration, sponsorship and co-sponsorship of international plasma conferences (http://aappsdpp.org/AAPPSDPPF/Meetings.html) such as 8th West Lake Symposium (WLS) and 4th Asia-Pacific Transport Working Group conference (APTWG), plasma physics meeting information (http://aappsdpp.org/AAPPSDPPF/upcomingmeetings.html), plasma physics education information (http://aappsdpp.org/AAPPSDPPF/Education.html), job opportunities (http://aappsdpp.org/AAPPSDPPF/jobopportunity.html), formation of the mailing list, etc. We will start exchange of information among members soon using cost free mailing system.

2. Executive Committee

The Executive Committee is a governing body of the DPP, which consists of the division officers and the ExCo secretary. The division officers are Division chair, Vice Chairs, Chief Division Secretary, and Division secretary. The first Division Chairman is Dr./Prof. M. Kikuchi (JAEA, Japan: http://aappsdpp.org/AAPPSDPPF/chairman.html).

Dr./Prof. M. Kikuchi(chair) Prof. L. Chen(vice chair) Prof. A. Sen(vice chair) Prof. M. Shiratani(vice chair) Prof. Z. Sheng(vice chair)



Prof. D. Ryu(vice chair) A/Prof. M. Hole(vice chair) Prof. L. Hau(chief secretary-> Vice chair for space plasma physics) A/Prof. K. Imadera (secretary) Dr. H. Nagai (HP secretary), A. Prof. T. Onjun (New chief division secretary representing ASEAN as of Jan.30, 2015)

Vice chair for Fundamental plasma physics (D-0) is Prof. Liu Chen (Zhejiang U., Beijing), Vice Chair for Basic plasma physics (D-1) is Prof. Abhijit Sen (IPR, India), Vice Chair for Applied plasma physics is Prof. Masaharu Shiratani (Kyushu U., Japan), Vice Chair for Laser Plasma physics is Prof. Zenming Sheng (SJTU, Beijing), Vice Chair for Astro/solar/space plasma physics is Prof. Dongsu Ryu (UNIST, Korea), Vice Chair for next APPC plasma science program is A.Prof. M. Hole (ANU, Australia), Chief Division Secretary in charge of education and woman in plasma physics: Prof. Lin-Ni Hau (NCU, Beijing), Division Secretary is A/Prof. Kenji Imadera (Kyoto U., Japan), DPP-HP Secretary is Dr. Haruo Nagai.

3. International Honorary Advisory Committee (I-HAC)

The DPP is formed in January by the approval of AAPPS council. This formation of DPP is quite late compared with those in APS and EPS. To accelerate DPP activity, ExCo decided to form an international advisory committee in AAPPS-DPP, called I-HAC (International Honorary Advisory Committee). The Role of I-HAC is to advice ExCo for DPP operation and sometime would take action by the request of DPP Chair on behalf of ExCo. The member of I-HAC shall be a plasma physicist with outstanding scientific achievement or significant contribution to the AAPPS-DPP, who could make important advices to DPP-ExCo (age approximately above 60). We have 18 I-HAC members appointed by the DPP-ExCo as follows.


Prof. P. Kaw (Chair)


Prof. A. Hasegawa


Acad. Prof. C. Yu


Prof. R. Dewar


Prof. C.Z. Cheng


Prof. C.S. Chang

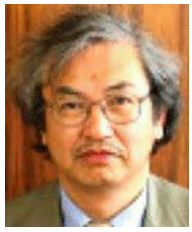

Prof. F.F. Chen


Prof. R. Hatakeyama


Prof. R. Boswell


Prof. T. Tajima


Acad. Prof. X.T. He


Prof. K. Mima


Prof. K. Shibata


Acad. Prof. L.C. Lee


Prof. Z. Pu


Prof. W. Namkung


Prof. M. Sasao


Prof. H. Takabe


Prof. Chuanhong Pan (join on Sept. 26,2014)

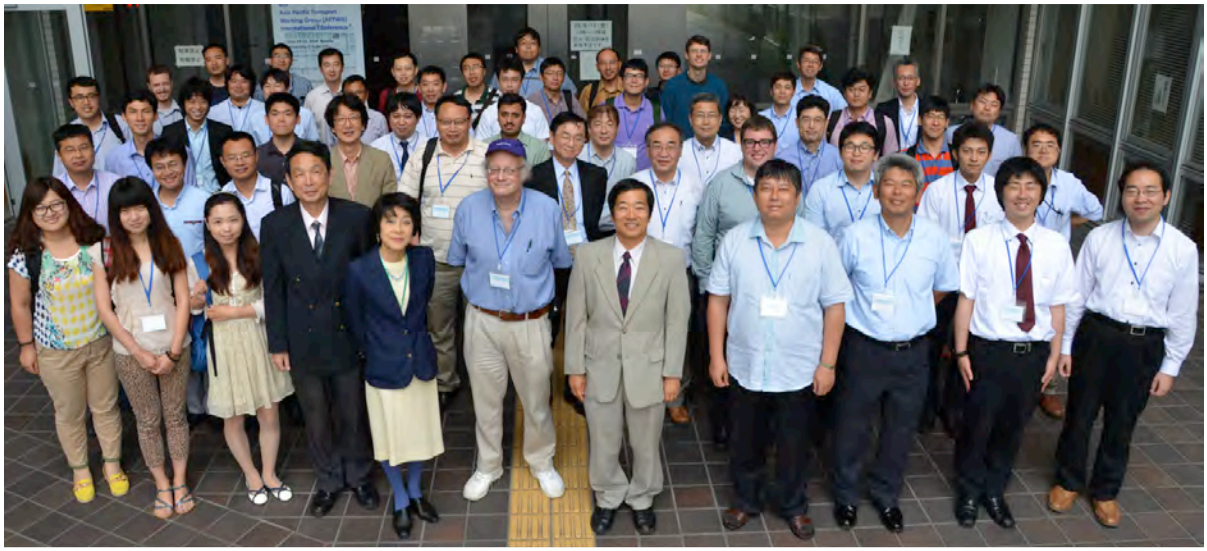
The 4th Asia–Pacific Transport Working Group (APTWG) International Conference

Katsumi Ida, Chair of Conference Organizer, National Institute for Fusion Science

The 4th Asia-Pacific Transport Working Group (APTWG) international conference was held at Kyushu University, Japan, during 10–13 June 2014. The goal of the APTWG is a predictive understanding of the basic mechanisms responsible for transport, and ultimately, controlling these transport processes. The workshop topics were A) Turbulence suppression and transport barrier formation, B) Effect of magnetic topology on MHD activity and transport, C) Non-diffusive contribution of momentum and particle transport., D) Non-local transport and turbulence spreading and coupling, E) Energetic particles and instability. The number of participants of the conference was 59 (53 researchers and 6 students) from Asian countries including Japan, Korea, China, India, U.S.A. and France. At the special interdisciplinary plenary contributed session, Dr.A.Fujisawa (RIAM, Japan) reviewed fundamental turbulence structures and their interactions in basic plasma devices at low temperature, such as linear cylindrical and torus devices. In his view, advanced analysis tools will propel us to elucidate steady and dynamic characteristics of plasma turbulence, and to quantify elementary processes. Dr.L.Wang (IPP, China) introduced experimental SOL width scaling and recently developed models. He also led a discussion about active modification of the steady-state power footprint by regulating divertor condition with multi-pulse SMBI. Dr.X.L.Zou (CEA, France) reported recent experimental observation of ELMs and turbulence in the pedestal. He exhibited a correlation between particle flux and large- and small-scale turbulence.

In the working group session, active discussions were conducted. There were 29 oral talks. Along with these oral talks, 30 poster contributions were also presented. Theoretical models were developed and tested qualitatively and simulation study attempted reconstructions of experimental observations quantitatively. The new experimental results offer new insights. Several oral speakers demonstrated the coexistence of multi-scale fluctuating structures, e.g. zonal flow, streamer, micro-turbulence, ELMs and NTMs. Interplay among them and establishment of control algorithms will be the principal focus of this working group. Several other papers discussed the limitation of the conventional turbulence transport modeling, which is based on linear instability and local diffusive mixing. In addition to the other scientific working groups, the APTWG meeting includes a young researcher forum, dedicated for students and researchers at early stage of their career. In this year, there were presentations by students, who did not have a chance to present their work in the oral sessions. Informal discussion with a senior researcher was also arranged. This year, we gave a poster prize to a student who presents excellent research achievement regarding plasma transport. The winner in 4th APTWG was Ms. Dongmei Fan (Dalian Univ. of Tech., China) for the outstanding presentation entitled "Effects of ion diamagnetic drift on the m/n=1 high-order harmonic modes in rotating tokamak plasmas".

The 4th APTWG international conference provided a place for the fruitful discussion between the scientist in the field of 1) turbulence and transport, 2) MHD and magnetic topology, and 3) energetic particles and instability and new insight for the interaction between turbulence, magnetic topology and energetic particle driven instability. The next meeting will be held Dalian in China in 2015.We would like to thank advisory committee menbers, working group leaders and the local organizers who produced significant efforts to lead to the success of the 4th Asian-Pacific Transport Working Group International Conference and co-sponsorship of Association of Asia Pacfic Physical Societies Division of Plasma Physics. We are also grateful to the collaboration programs of the Research Institute for Applied Mechanics of Kyushu University and Asada Science foundation.

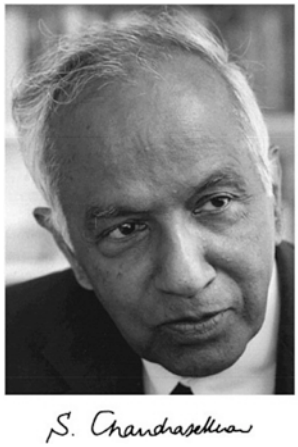


Prospectus : S. Chandrasekhar Prize of Plasma Physics

2014.07.30

AAPPS-DPP executive committee

3. Foundation of S. Chandrasekhar Prize



Subrahmanyan Chandrasekhar (1910-1995) was an Indian-American astrophysicist who was awarded the 1983 Nobel Prize for physics for his theory of black hole. He worked in various areas including plasma physics. Plasma physics community is benefited from his works through his textbooks such as "Principles of stelar dynamics (1942)", "Plasma Physics (1975)", "Hydrodynamics and Hydromagnetic stability (1981)".

In 2014, we have established the Division of Plasma Physics under AAPPS. Asia-Pacific region is rapidly growing economically and scientifically. A large number of new programs on various fundamental and applied aspects of plasma physics are emerging in several countries of Asia and the Pacific regions. Young people taking up careers in plasma science in these regions look forward to the prestige of recognition by their peers and this becomes more equitable when your peers are intimately familiar with your work. This will also give a "sense of accomplishment" to the Asia-Pacific region as a whole because the body of significant work already pioneered by the Awardees will be ascribed to this region. The executive committee of division of plasma physics after consultation to I-HAC (International Honorary Advisory Committee) decided to establish Plasma Physics Prize after S. Chandrasekar to recognize seminal/pioneering works in this field.

4. Description of the S. Chandrasekhar Prize

The Chandrasekhar Prize is awarded by the Division of Plasma Physics of the AAPPS to recognize outstanding contributions to experimental and/or theoretical research in fundamental plasma physics and plasma applications in all fields of physics.

i) **Rule**: This Prize will be given to an AAPPS-DPP member who has made seminal / pioneering contribution to any field of plasma physics or plasma applications as stated above.
ii) **Nomination**: Necessary documents and time schedule for nomination will be announced in the DPP home page. DPP seeks outstanding nominations worldwide and especially from the Asia-Pacific region.
iii) **Selection**: Selection will be made by the Chandrasekhar Prize Selection Committee annually.
iv) **Selection Committee**: DPP-ExCo will appoint Chair and members of selection committee taking into account of the I-HAC recommendations.
v) **Award Ceremony**: Certificate, Medal and a cash award will be bestowed to the awardees at the APPC conference held every three years.

vi) **Obligations**: Chandrasekhar awardees should deliver invited talks in the APPC as well as contribute review papers to the DPP journal.

3. Call for Sponsorship and Contribution

Division of Plasma Physics (DPP) seeks the official sponsorship by any organizations and personal contributions in support of above prospectus. Contribution will be used for DPP operation and awards. Official sponsorship by the organization will be recorded in the diploma of DPP Awards and the home page. Official sponsorship shall be one or more units in the US $ 5, 000. You may visit AAPPS-DPP HP at http://aappsdpp.org/AAPPSDPPF/index.html. For detail, contact DPP HP secretary at <aappsdpp.hp@gmail.com>.

4. Nomination Guidelines

Any DPP members (not a member of the committee making the selection) may submit one nomination or seconding letter for the prize in any given year. A nomination should include: A letter evaluating the nominee's qualifications in the light of the particular features of the prize and identifying the specific work to be recognized.

Nomination statement shall include:

1. Name of nominee (only one person)
2. Citation
3. Description of scientific accomplishments
4. CV of the nominee
5. Selected most important publications on the citation with some information on published journal's impact factor, number of citations (WoS).
6. Seconding letters from four leading plasma physicists each letter less than 3 pages
7. Commitment letter by the nominee to be able to participate APPC and to write a review article to the DPP journal and the title of the paper.

DPP shall not give more than once of this prize to the same recipient. The names of the Prize Selection committee will be posted on the DPP homepage only after its decision. The nomination statement shall be sent to the DPP chair electronically.

The nomination deadline for 2014 S. Chandrasekhar Prize is September 30, 2014 in Japan time. (Extended to Oct 31).

The 4th East Asian School and Workshop on Laboratory, Space, and Astrophysical Plasmas held in Harbin, China

Xiaogang Wang, Hui Li (Co-chairs)

The 4th East Asian School and Workshop on MHD and Kinetic Processes in Laboratory, Space, and Astrophysical Plasmas has been held from July 28 to August 1, 2014, in Harbin, the northmost provincial capital in China,

Started in summer 2006, The School and Workshop was first hosted by Peking University, Beijing, China, and then UNIST, Korea and Tokyo University, Japan. This year's school and Workshop was hosted by Harbin Institute of Technology (HIT), and co-chaired by Prof. Xiaogang Wang of Department of Physics, HIT, China and Dr. Hui Li of Los Alamos National Lab, USA.

More than a hundred of researchers and students from China, Korea, Japan, US, and EU attended the school and workshop. The morning school lectures were on turbulence, dynamo, and magnetic reconnection, by Prof. Patrick H. Diamond of UCSD, Prof. Hantao Ji of Princeton, Dr. H. Li of LLNL, and Prof. X. Wang of HIT. Corresponding topics and special focuses on simulation were discussed in the afternoon workshop.

The school and workshop were also supported by the co-sponsors, University of Science and Technology of China and the Center for Magnetic Self-Organization, USA. Next school and workshop is proposed in Korea, 2016.

The group photo of the school and workshop (students of HIT are not included)

AAPPS-DPP News 2014.11.25

Nuclear Fusion Prize Laureates in 25th IAEA Fusion Energy Conference

Mitsuru Kikuchi, Chairman Nuclear Fusion Board of Editors

Fusion research is one of important application of plasma physics since man-made fusion of deuterium and tritium requires high temperature plasma ten times more than the maximum temperature of the Sun. Nuclear Fusion journal is a leading journal in this field having its maximum impact factor 4.3. The board of editors of Nuclear Fusion selects top 10 papers as Nuclear Fusion prize nominees among papers published in one volume (3 years before selection).

Recent fusion research has strong focus to find out ways to mitigate effect of ELM (edge localized mode) or find ELM free H-mode, which is known to be important for the scientific success of ITER.

We have selected Prof. D. Whyte paper in 2010 on I-mode at Alcator C-Mod as Nuclear Fusion Prize 2013 with almost ELM free and having L-mode particle confinement and H-mode energy confinement.

We also selected Dr. P. Snyder paper in 2011 on pedestal modeling as Nuclear Fusion Prize 2014 with successful prediction of edge pedestal combined with ideal MHD and kinetic ballooning mode.

Award ceremony was held at 25th IAEA Fusion Energy Conference at Saint Petersburg, Russia on Oct. 13 during the opening ceremony. Certificate and glass are given by the IAEA Deputy Director General Alexander V. Bychkov.

From Asian region/Asian origin, we have Prof. Katsumi Ida (NIFS), Prof. Kerchung Shaing (NCKU), Y. Liang (JET) in the 2013 top 10 papers and Prof. Guosheng Xu (ASIPP) in the 2014 top 10 papers.

You might remember that 2011 Nuclear Fusion prize is awarded to Dr. Hajime Urano (JAEA), 2012 Nuclear Fusion prize to Prof. Patrick Diamond (UCSD, former WCI director).

Photos of Nuclear Fusion Award ceremony at 25th Fusion Energy Conference.
D. Whyte (left center) and P. Snyder (right center)

p.s. Recently Prof. Miklos Porkolab announced that he will step down from director of PSFC at MIT and Prof. D. Whyte will become a director from January 1, 2015.

AAPPS-DPP News 2014.11.28

Summary report for the 11th Asia Pacific Plasma Theory Conference (APPTC 2014)

J.Y. Kim (NFRI, Korea)

During July 1-4, 2014, the 11th Asia Pacific Plasma Theory Conference (APPTC 2014) was held in Kensington Resort, Jeju Island, South Korea as a joint conference with Japan-Korea Workshop on "Modelling and Simulation of Magnetic Fusion Plasmas". There were 96 participants from China, India, Japan, Korea, USA, France, Ukraine etc. representing 25 institutions worldwide. Total 33 oral talks and 32 posters were presented including 3 plenary and 14 invited talks.

The purposes of APPTC are to facilitate the collaborations among the plasma theorists and to educate young scientists in the Asia-Pacific countries. Particularly, the advent of new superconducting tokamaks such as EAST (China), KSTAR (Korea), SST-1 (India), and JT-60SA (Japan) in addition to LHD (Japan) in Asia-Pacific region requires significant advance in the theory and simulation researches of magnetic confinement fusion plasma. The workshop topic included theory, modelling, and simulations of magnetic confinement fusion plasmas, space plasmas, laser-plasma interactions, basic plasma phenomena, and low temperature plasmas.

Since the first meeting was held in Daejeon (Korea, 1996), the meeting was continued in Toki (Japan, 1997), Beijing (China, 1998), Seoul (Korea, 1999), Hangzhou (China, 2000), Sydney (Australia, 2002), Nara (Japan, 2005), Ahmedabad (India, 2007), Aomori (Japan, 2009), Canberra (Australia, 2012), and Jeju Island (Korea, 2014) this year. The next 12th APPTC will be held in Hangzhou, China, in 2016 with the organization by Zhejiang University.

AAPPS-DPP News 2014.12.01

Plasma Conference 2014 held in Niigata, Nov. 18-21, 2014

(http://www.jspf.or.jp/PLASMA2014/)

Kazuo A. Tanaka,
Chairman of Plasma Conference 2014
Professor, Osaka University, Osaka Japan

Plasma Conference 2014 has been held at Toki Messe, Niigata, Japan, covering from the basic plasma science to the cutting edge applications: the largest in its size.
The conference was made possible by the joint participation of three major Japanese plasma societies: Division of Plasma Physics, Japan Physical Society, Japanese Society for Plasma Science and Fusion Research, and Division of Plasma Electronics, Japan Applied Physics Society. More than 20 plasma related societies took part in such as the Institute of Electrostatic Japan and the Japan Institute of Metal and Materials.

The meeting program has started with the plenary talks of Magnetic and Laser confinement fusion (Dr D Campbell, ITER and Dr J Edwards, LLNL), Dynamo mechanism in space (Prof A Bhattacharjee, Princeton Plasma Physics Laboratory), and Medical Applications of Plasma, newest trend in Japan (Prof Masaru Hori, Nagoya Univ.). More than 900 participants got together at the site including research scientists, professors, graduate students, and industry members. The program has new trials of lecture series by prof Richard More (LLNL Retiree) and industry exhibition by more than 30 companies.

The graduate students were encouraged to make poster presentations. The best poster award has been given to about 20 graduate students. Next meeting will be operated by the Chairman, Prof Mineo Hiramatsu, Meijo Univ.

AAPPS-DPP News 2014.12.11

Sokendai Asian Winter School (AWS2014)
Dec.2-5, 2014 (http://nsrp.nifs.ac.jp/aws2014/index.shtml)

Seiji Ishiguro and Hiroaki Ohtani
Executive committee of AWS2014
National Institute for Fusion Science, Toki Japan

Since 2004, the Graduate University for Advanced Studies (Sokendai) has given a series of lectures and training courses for students and young scientists from predominantly Asian countries in cooperation with five departments of the School of Physical Sciences (Functional Molecular Science, Structural Molecular Science, Astronomical Science, Space and Astronautical Science, and Fusion Science).

The Asian Winter School of the Department of Fusion Science was held jointly with "Toki Lectures on Simulation Science 2014" from Dec. 2, 2014 through Dec. 5, 2014 at the National Institute for Fusion Science (NIFS), Toki Japan. The subtheme of the Department of Fusion Science in this year was "Multiple Approaches in Plasma Physics and Fusion Science".

The total number of applications was 106, and the breakdown of the applicants was 94 from abroad and 12 from Japan. Eight of the 94 applicants from abroad received an email about AWS2014 from AAPPS-DPP news and applied to AWS2014. Thirty students were selected and joined AWS2014. A breakdown by country revealed, 12 students from Japan, 3 students from China, 2 students each from Indonesia, Taipei, Nepal, France and Russia, respectively, and one student each from Italy, India, Austria, Korea and Thailand, respectively. A breakdown by position was as follows: 6 graduate students, 22 undergraduate students, and 2 researchers.

This course contained lectures about basic plasma physics, plasma experiments aimed at a thermonuclear fusion reactor, and simulations for fusion plasmas and complex phenomena of plasmas. The students visited the Large Helical Device (LHD) and the virtual-reality system (CompleXcope) to come in touch with the newest large experimental device and scientific visualization tool, respectively. In the poster session, the students gave a presentation about their ongoing research or future plans. The staff and students of NIFS also participated in the session and discussed their presentations to deepen their friendship. For visiting the laboratories of NIFS, some students sent their request to meet researchers of NIFS by email before starting the AWS2014. They met with them and discussed their studies and future plans.

DPP News 2014.12.24

The First Laureate of S. Chandrasekhar Prize of Plasma Physics is Prof. S. Ichimaru

2014.12.24 Mitsuru Kikuchi (DPP chair)

5. Nomination for S. Chandrasekhar Prize

There are five nominations from Australia, China, Taiwan, and Japan to the S. Chandrasekhar prize of plasma physics until the deadline Oct. 31. All nominations show excellence of plasma physicists especially in Asia-Pacific region. I am sure we can continue awarding excellent plasma physicists.

6. S. Chandrasekhar Prize Selection Committee

Chair: Prof. Won Namkung (Korea)
Members: Prof. Bimla Buti (Space, India), Prof. Abhijit Sen (basic, India), Prof. Robert Dewar (Fundamental, Australia), Prof. Tony Murphy (Applied plasma physics, Australia), Prof. Liu Chen (fundamental plasma physics, China), Prof. Baonian Wan (fusion plasma physics, China), Prof. Taik Soo Hahm (fundamental plasma physics, Korea), Prof. Lin I (complex plasma, Taiwan), Prof. Kunioki Mima (Laser plasma, Japan), Prof. Toshio Terasawa (Astro/space plasma physics, Japan)

7. Outcome of S. Chandrasekhar Prize Selection Committee

The Chairman sent me a conclusion that Prof. Em. Setsuo Ichimaru was selected among an excellent pool of candidates. I would like to congratulate and also express my sincere respect to Prof. S. Ichimaru for his outstanding contribution to the plasma physics.

Ref: SC Memo-17
Date: December 14, 2014
Subject: Conclusion of Selection Committee

Dear Professor Mitsuru Kikuchi, AAPPS-DPP Chair

On behalf of the Selection Committee for the S. Chandrasekhar Prize, it is my great pleasure to inform you that Prof. S. Ichimaru, University of Tokyo, is recommended to the winner of the prize in 2014,

"for his contributions to the establishment of the theoretical basis of the science of strongly-coupled plasmas and their applications, not only to laboratory plasmas and plasmas in solid- or liquid-state materials including fusion plasmas, but also to important astrophysical plasma phenomena including radiation and nuclear reactions".

I would like to extend our congratulation to Prof. S. Ichimaru.

Expressing my thanks to Selection Committee members for their dedication during a busy period of a year,

.
Sincerely yours,

Won Namkung

Won Namkung
Chair, Selection Committee

DPP News 2015.01.14

1st ASEAN School on Plasma and Nuclear Fusion (ASPNF2015), January 6-9, 2015 (https://sites.google.com/site/fusionthai2015/)

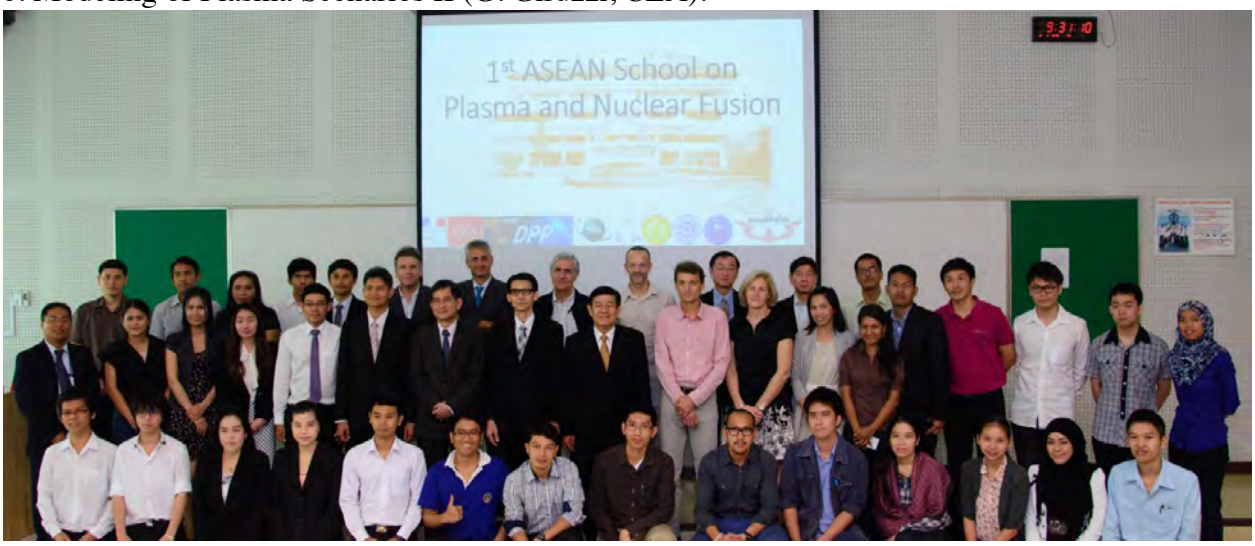
Dr.Thawatchai Onjun

Sirindhorn International Institute of Technology, Thailand

The 1st ASEAN School on Plasma and Nuclear Fusion was held under the framework of the Cooperation Agreement in the field of magnetic fusion research between the France and Thailand. There are many organizations supporting this activity including the French Alternative Energies and Atomic Energy Commission or CEA, the French Embassy of Thailand, the Association of Asia Pacific Physical Societies: Division of Plasma Physics, Sirindhorn International Institute of Technology, Thammasat University, National Research Council of Thailand, Thailand Physics Society, and Nuclear Society of Thailand. It was an intensive course taught by fusion experts from January 6, 2015 through January 9, 2014 at Sirindhorn International Institute of Technology, Thailand.

Twenty six participants were selected and joined ASPNF2015. A breakdown by country revealed, 21 participants from Thailand, 2 participants from Malaysia, 1 participant each from Indonesia, India, and Philippine, respectively. A breakdown by position was as follows: 15 graduate students, 4 undergraduate students, and 7 young researchers. The school contained lectures about basic plasma physics and thermonuclear fusion, plasma diagnostic, and simulations for fusion plasmas.

Lectures given are 1. Fusion around the World & ITER, Path for fusion energy (J.M Ané, CEA), 2. Plasma Physics and Fusion Research (M. Kikuchi, JAEA), 3. Magnetic Fusion Research in France & WEST (T. Hoang, CEA), 4. Fusion Research Program in Thailand (T. Onjun, SIIT), 5. MCF Concept (J.M Ané, CEA), 6. ICF Concept (M. Murakami, Osaka University), 7. Laser Fusion for High Energy Density Physics (M. Murakami, Osaka University), 8. Plasma Waves and Impurities (R. Dumont, CEA), 9. Waves and Instabilities in Magnetic Fusion Plasmas (R. Dumont, CEA), 10. Heating & Current Drive (A. Ekedahl, CEA), 11. Lecture on MHD stability of tokamak (M. Kikuchi, JAEA), 12. Transport and turbulence (R. Guirlet, CEA), 13. Diagnostics I (R. Guirlet, CEA) , 14. Diagnostics II (R. Guirlet, CEA), 15. Modeling of Plasma Scenarios I (G. Giruzzi, CEA), 16. Modeling of Plasma Scenarios II (G. Giruzzi, CEA).



浙江大學聚變理論與模擬中心 潘雲鶴

Institute for Fusion Theory and Simulation, Zhejiang University

Address: Hangzhou, 310027, P.R. China **Website:** http://ifts.zju.edu.cn **Tel/Fax:** +86-571-8795-3967

9th West Lake International Symposium on Plasma Simulation

The First Announcement

Numerical simulation is a powerful tool to study complex nonlinear behaviors of plasmas. Institute for Fusion Theory and Simulation, Zhejiang University (IFTS-ZJU) will host the 9th West Lake International Symposium on Plasma Simulation at Zhejiang University, Hangzhou, China in May 18-21, 2015. The Symposium will focus on simulation models and numerical scheme as well as their applications in magnetically and inertially confined, space, and astrophysical plasmas. Scientists as well as graduate students, both domestic and abroad, are welcome to participate.

The Symposium format will consist of Invited and Contributed Talks, and Posters. In addition to present their recent results and progresses, participants are encouraged to explore new directions for future investigations as well as possible collaborations.

Symposium Language: English.

Sponsor: Institute for Fusion Theory and Simulation, Zhejiang University;

Computational plasma physics division of Computational physics society.

Association of Asia Pacific Physical Societies, Division of Plasma Physics

Scientific Program Committee:

A. Bhattacharjee, L. Chen, G. Y. Fu, M. Hoshino, X. T. He, L. C. Lee (Chair), H. Sugama, C. Wang, L. O. Silva, X.Q. Xu, S. P. Zhu, F. Zonca

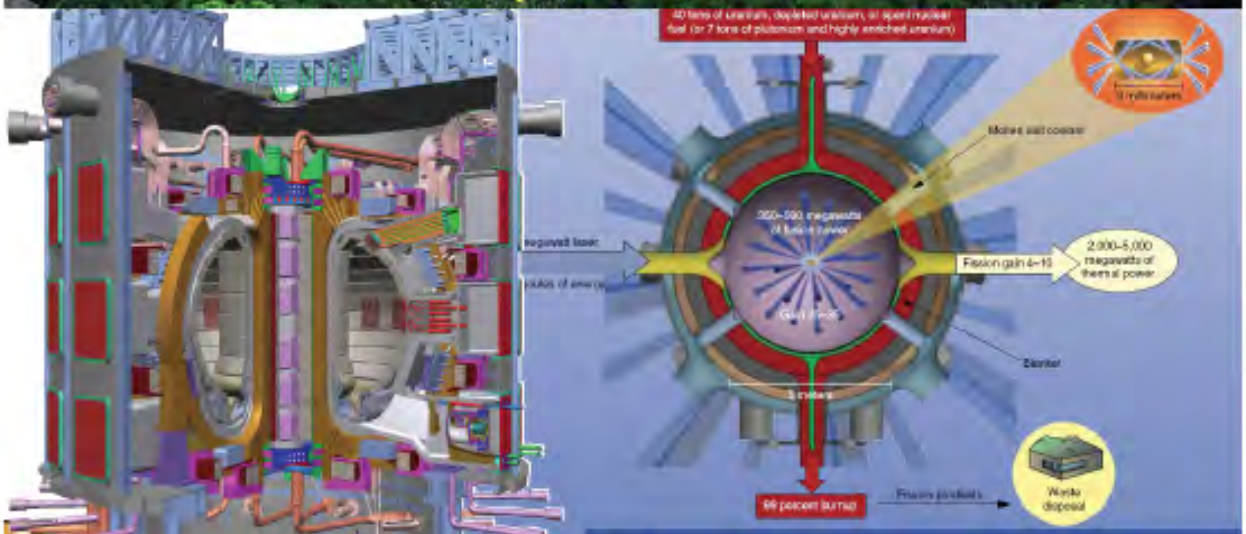
Local Organization Committee:

Ma, Zhi-Wei (ZJU, Chair); Sheng, Zheng-Mao (ZJU, Co-Chair); Xiao Yong (ZJU); Wu, Huichun(ZJU)

The Ninth International West Lake Symposium - Plasma Simulation

Hangzhou, China

May 18-21, 2015



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Organizers: ZW Ma (Chair), ZM Sheng (Co-Chair), Y Xiao, HC Wu

Institute for Fusion Theory and Simulation
Zhejiang University
http://ifts.zju.edu.cn/simulation.php

DPP News2015.01.16

3rd A3 Foresight Workshop on Spherical Torus, Dec. 15-17, 2014

Michiaki Inomoto

Organizer of 3rd A3 Foresight Workshop on Spherical Torus

Associate Professor, GSFS, The University of Tokyo, Japan

3rd A3 Foresight Workshop on Spherical Torus (ST) was held from Dec. 15 to Dec. 17, 2014, at Okura Akademia Park Hotel, Kisarazu, Chiba, Japan, as a seminar of A3 Foresight Program on "Innovative Tokamak Plasma Startup and Current Drive in Spherical Torus" supported by JSPS (Japan) / NRF (Korea) / NSFC (China) since 2012. The goals of this project is to establish center-solenoid-free ST start-up scheme and to comprehend MHD/non-MHD dynamics and transport of center-solenoid-free ST plasmas under the international cooperative framework among six distinctive ST experiments operated in universities in Japan, Korea, and China. As well as personnel exchanges for joint research, workshops and summer schools are convened in this project. Previous workshops were held in Seoul (Jan 2013), and Beijing (Jan 2014), and previous summer schools were held in Tokyo (Jul 2013), and Jeju Island (Jul 2014).

Forty-nine participants attended the 3rd workshop and thirty-nine oral talks focused on ST start-up technique (waves, helicity injection, merging, etc.), ST plasma physics, ST reactor design, and diagnostics, were presented. Education and training of young researcher/students is another important objective of this program. In this workshop, four students were given awards for their outstanding presentations.

The next A3 Summer School on ST will be held in Chengdu, China in 2015 summer, and the next A3 workshop on ST will be held in Korea in 2015-2016 winter.

Group photo of A3 foresight workshop

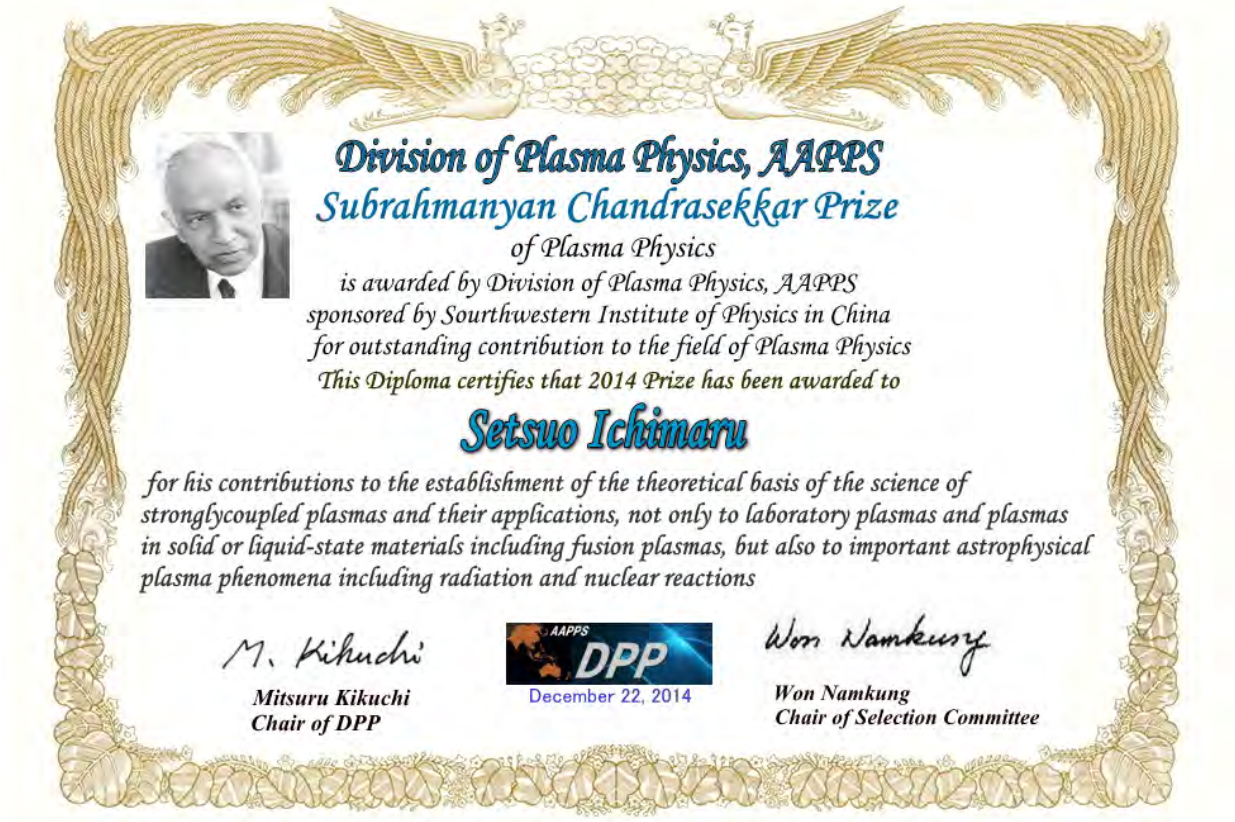
Subramanyan Chandrasekhar Prize of Plasma Physics

– Prof. Em. Setsuo Ichimaru is selected as 1st Laureate (2014) –

The Division of Plasma Physics (Chair: Mitsuru Kikuchi) under Association of Asia Pacific Physical Societies selected Prof. Em. Setsuo Ichimaru of the University of Tokyo as the first Laureate of S. Chandrasekhar Prize of Plasma Physics, which is awarded to a scientist who has made seminal / pioneering contribution in the field of plasma physics Dec. 22, 2014.

Fig. Prof. Em. Setsuo Ichimaru

Citation : For his contributions to the establishment of the theoretical basis of the science of strongly coupled plasmas and their applications, not only to laboratory plasmas and plasmas in solid- or liquid-state materials including fusion plasmas, but also to important astrophysical plasma phenomena including radiation and nuclear reactions.



1. Brief description of the achievement of Prof. S. Ichimaru

The plasmas in magnetic confinement fusion research and solar flare are called the "weakly coupled plasma" since the Coulomb potential energy is much smaller than the kinetic energy. The plasma in the central region of the Sun, Jupiter, White Dwarfs, Pulsar, or Neutron Stars are on the other hand called the "strongly coupled plasma" since Coulomb potential energy becomes much larger than the kinetic energy. Typical example of the strongly coupled plasma in laboratory plasma is dusty plasma.

Prof. Ichimaru is the founder of the theoretical framework of the strongly coupled plasma and his paper published in the Reviews of Modern Physics in 1982 made a big impact to this field having citations close to 900. The applications of his strongly coupled plasma theory include dielectric properties of electron liquids at metal densities, transition from Coulomb crystal to glass state in the strongly coupled plasma, metal-insulator phase transition in the high-density hydrogen plasma, etc. In addition, he formulated the large enhanced fusion reaction as a specific phenomena in the strongly coupled plasma applied to the white dwarfs.

Prof. Ichimaru also made seminal contributions in elucidating the physical process (such as bimodal behavior of H and L states in Cygnus-X1) in dense astrophysical plasmas accreting onto a compact object in a binary system such as a stellar black hole or a neutron star, and thereby clarified the mechanisms by which huge gravitational energies liberated in such accreting plasmas are converted into copious electromagnetic radiation mostly in X-rays.

2. S. Chandrasekhar Prize of Plasma Physics

Plasma physics prize founded by the AAPPS-DPP sponsored by Southwestern Institute of Physics on July 2014. This prize is given to a plasma physicist annually who has made pioneering and/or seminal contribution to the plasma physics.

The first selection committee is held during November to December. The chairman is Prof. Won Namkung (former director of Pohang accelerator lab.). Members are Profs B. Buti (India), A. Sen (India), R. Dewar (Australia), T. Murphy (Australia), Liu Chen (China), B. Wan (China), T.S. Hahm (Korea), Lin I (Taiwan), K. Mima (Japan), T. Terasawa (Japan).

Certificate and Medal will be given at the 13th APPC conference in Australia.

M. Kikuchi (AAPPS-DPP chair).
W. Namkung (S. Chandrasekhar Prize selection committee chair)
http://aappsdpp.org/AAPPSDPPF/index.html

AAPPS-DPP S. Chandrasekar Prize 2014 Sponsorship Agreement

With reference to the Prospectus of S. Chandrasekar Prize of Plasma Physics of AAPPS-DPP executive committee (ExCo) as attached,

South Western Institute of Physics (SWIP) recognizes its importance to create such an honorable Prize in Asia-Pacific Region by the Division of Plasma Physics under AAPPS and desires to contribute to such an activity through the co-sponsorship of this Prize for the year 2014.

In response to above, AAPPD-DPP ExCo agrees to grant the co-sponsorship of the S. Chandrasekar Prize to SWIP and agreed to record its co-sponsorship in the certificate of the 2014 S. Chandrasekar Prize recipient. DPP also deeply appreciate SWIP for this significant contribution to the DPP activities.

Chengdu Tongchuang Applied Plasma Technology Center (成都同创材料表面新技术工程中心) agrees to pay $ 5,000 to AAPPS-DPP for this grant of SWIP co-sponsorship. Payment shall be made within two months after the signature through bank transfer to DPP account.

In case there appears any problem in execution of this agreement, concerned representatives will jointly solve the problem.

Deputy director,
Chengdu Tongchuang
Applied Plasma Technology Center

Tang Deli

Dr. Tang Deli

Date Sept. 1, 2014

Chairman,
Division of Plasma Physics
AAPPS

Mitsuru Kikuchi

Dr./Prof. Mitsuru Kikuchi

Date July 30, 2014

プレスリリース

平成２６年１２月２２日

アジア・太平洋物理学会連合（AAPPS）

プラズマ物理部門（AAPPS-DPP）

スブラマニアン・チャンドラセカール　プラズマ物理学賞

－　一丸節夫東大名誉教授に第一回賞(2014 年)を授与することを決定　－

アジア・太平洋物理学会連合(AAPPS：金会長）傘下のプラズマ物理部門（部門長：菊池　満）は、プラズマ物理学の顕著な進歩に貢献した研究者に授与する第１回チャンドラセッカール賞の受賞者 に東京大学名誉教授一丸節夫氏を選出した。

受賞理由：強結合プラズマ理論の構築と適用に関する氏の貢献。その適用は、核融合プラズマを含む実験室プラズマや固体、液体状態のプラズマを含み、天体プラズマにおける放射、核反応過程を含む重要な現象に適用されている。

本件問い合わせ先：アジア・太平洋物理学会連合 プラズマ物理部門長
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プレスリリース

一丸節夫氏の業績について

一丸節夫東大名誉教授（理学部物理学科）

磁場核融合研究や太陽表面のフレアーなどで研究されているプラズマは、クーロン力による位置エネルギーに比べて運動エネルギーが圧倒的に大きな弱結合プラズマである。一方、太陽、木星、白色矮星、パルサー、中性子星などの中心部のプラズマはクーロン力による位置エネルギーが運動エネルギーより大きくなる。このようなプラズマを強結合プラズマと呼ぶ。また、実験室プラズマとして良く知られている強結合プラズマにはダストプラズマがある。

一丸節夫教授は、当該分野の理論体系を創設した研究者であり、米国物理学会が運営している著名な論文誌 Reviews of Modern Physics に 1982 年に掲載された氏の強結合プラズマ理論に関する論文は引用回数が 900 回弱を数える。また、その適用の例としては金属密度域の電子液体の誘電特性、強結合プラズマにおける結晶構造からガラス構造への転移理論、高密度水素の金属絶縁体転移を含む状態図の理論などを構築した。また、強結合プラズマにおける特有の現象として、核融合反応率の増幅現象についても正確な評価を行い、白色矮星中心部における反応などに適用された。

一丸節夫教授は、天体プラズマ研究においても重要な貢献をされた。特に、恒星質量ブラックホールや中性子星のようなコンパクト天体へ降着していく連星系における高密度の天体プラズマの物理過程を解明し、もって降着するプラズマに投入される巨大な重力エネルギーが X 線を中心とした豊富な電磁放射に変換される機構を解明された。

付録１：高密度水素プラズマにおける金属−絶縁体転移に関する一丸教授の業績

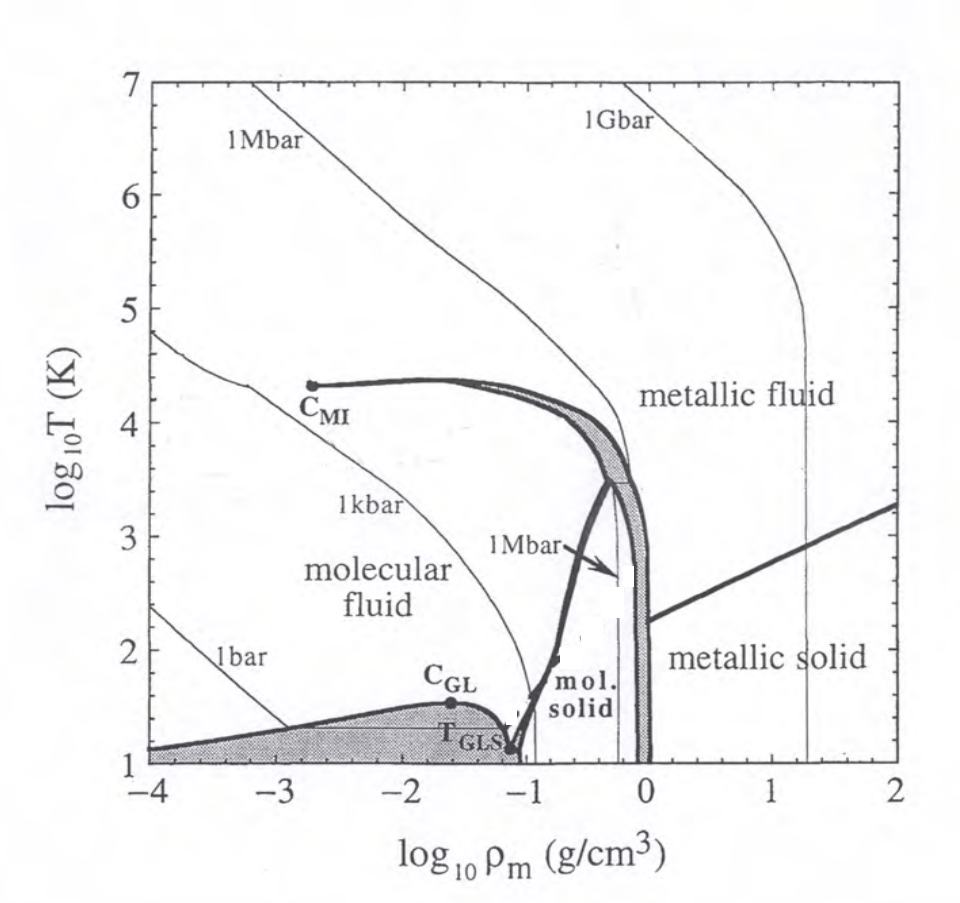


図-1　高密度水素における相図. C_{MI} と C_{GL} はそれぞれ、金属―絶縁体転移、気体―液体転移の臨界点を示す。(molecular fluid; 分子性流体(絶縁体), molecular solid; 分子性固体(絶縁体), metallic fluid; 金属性流体, metallic solid; 金属性固体)

付録２：X 線星白鳥座 X-1 に関する一丸教授の業績

一丸教授は 1977 年、白鳥座 X-1 (Cygnus X-1)において観測された X 線のエネルギー分布における“高”モードと“低”モード（Fig. A）の間の二相遷移の機構を解明した。これは、X 線星白鳥座 X-1 が恒星質量ブラックホールであることの証左の一つともなる。

二相遷移における挙動を Fig. B に示す。降着円盤には、“高”モードと“低”モードが存在し、両者間の遷移は内周域（~2x10^{8}cm, Fig. B）で発生すると考えられる。そこでは、熱的不安定性が“高”状態の円盤を“低”状態の円盤に変換すると考えられる。

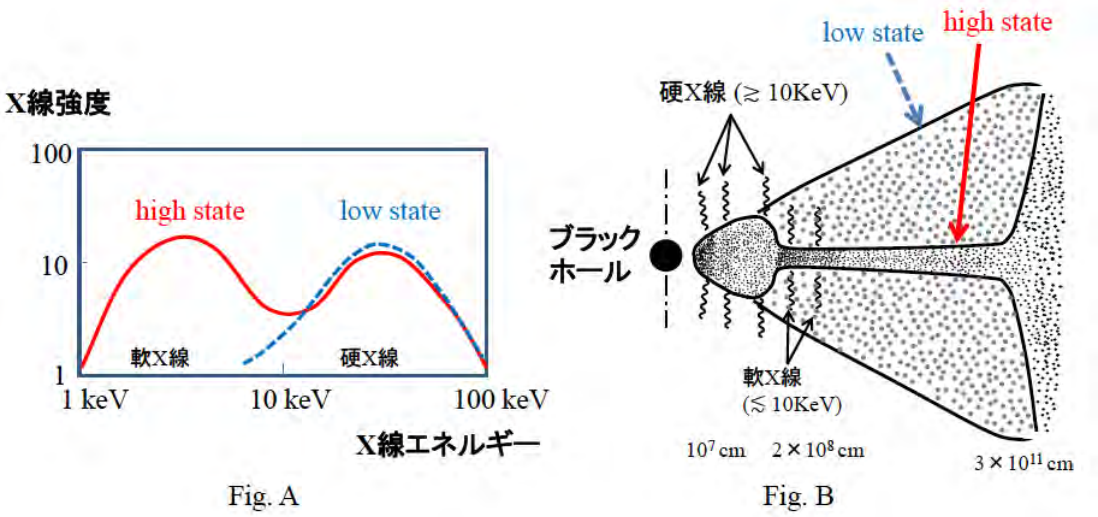
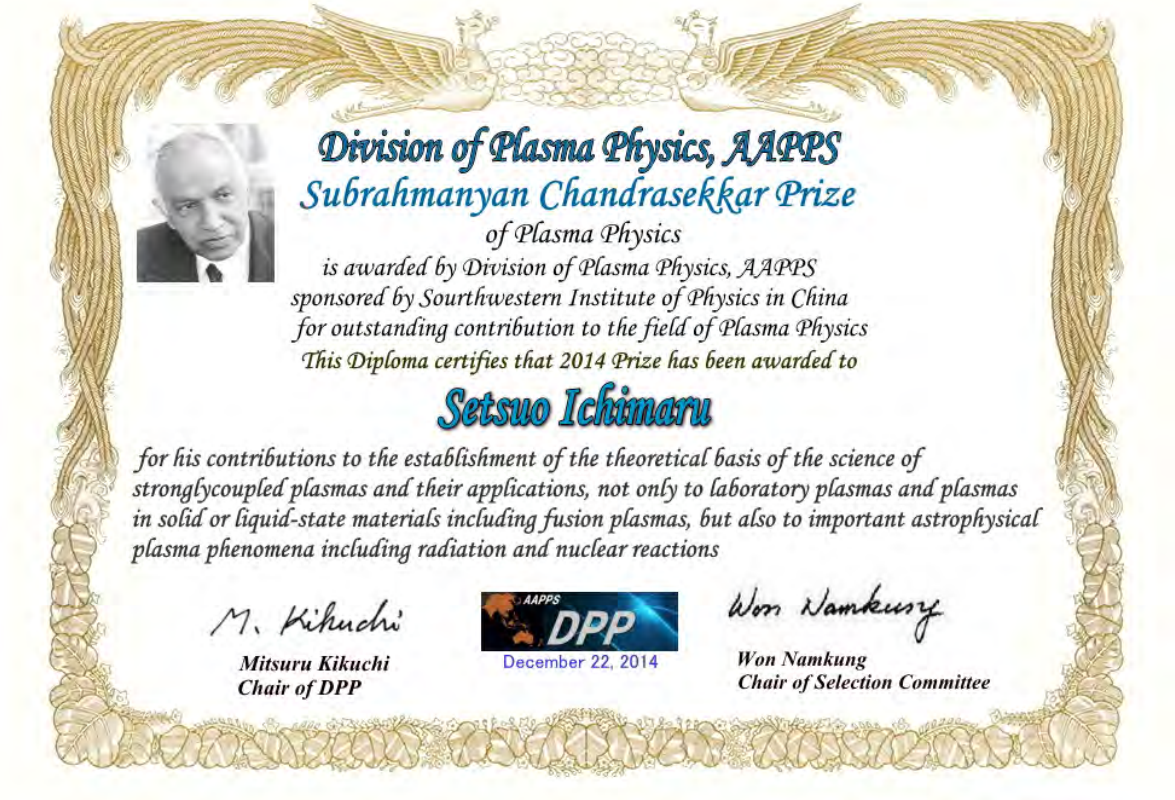


図 2 A. X 線スペクトルの模式図。図 B. ブラックホールの周りの降着円盤の 2 相性。軟 X 線（図 A）は半径が 2×10^8 cm 付近の領域から放射される。硬 X 線（図 A）は半径が$> 10^7$ cm 付近から放射される。

付録-3: プラズマ物理学に関する S. チャンドラセカール賞状

賞状とメダルはオーストラリアで 2016 年に開催される APPC（アジア太平洋物理学会）で授与される。



用語解説

1. スブラマニアン・チャンドラセカール (Subrahmanyan Chandrasekhar)

インド生まれの天体物理学者(Astrophysicist)。ブラックホールの理論（チャンドラセカール限界）で1983年にノーベル物理学賞を受賞した。氏の研究分野は多岐にわたり、プラズマ物理学における顕著な貢献は著書「Principles of Stellar Dynamics (1942)」や「Hydrodynamics and Hydromagnetic Stability (1981)」に見られる。

2. AAPPS: Association of Asia-Pacific Physical Societies

（アジア・太平洋物理学会連合、HP: http://www.aapps.org/main/index.php）

ノーベル物理学者 C.N. Yang と有馬教授によって 1983 年に設立されたアジア・太平洋地区の物理学会連合。2013 年には、永宮正治会長（当時）の下、千葉幕張でアジア太平洋物理学会(APPC-12)を開催している。現会長は韓国ポステックの金(Swan Kim)教授。

3. AAPPS-DPP :Division of Plasma Physics, AAPPS（アジア・太平洋物理学会連合プラズマ物理部門）HP : http://aappsdpp.org/AAPPSDPPF/index.html

アジア太平洋物理学会(APPC-12)におけるプラズマ物理分野の成功を踏まえ、永宮正治会長（当時）の推薦を得て、AAPPS 傘下の最初の Division として２０１４年１月に発足した。

4. S. Chandrasekhar Prize of Plasma Physics （プラズマ物理学に関する S. チャンドラセカール賞）

アジア・太平洋物理学会連合プラズマ物理部門が 2014 年 7 月に設置したプラズマ物理学賞であり、プラズマ物理学に関して顕著な貢献を行った研究者に授与される。本賞は中国、西南物理研究所がスポンサーとなっている。

第１回の選考委員会は 11 月から 12 月に実施された。選考委員長は、韓国ポステックの加速器センター元所長の Won Namkung 教授。委員には、B. Buti(Buti 財団理事長、印)、A. Sen(プラズマ研究所チャンドラセカール主任教授, 印), R. Dewar (ANU 名誉教授, 豪), T. Murphy (CSIRO, 豪), Liu Chen (浙江大学、中国), B. Wan (中国科学院プラズマ研究所長, 中), T.S. Hahm (ソウル大, 韓), Lin I (台湾中央大学,台),三間國興 (阪大名誉教授、日),寺澤敏夫 (東大宇宙研副所長、日)。

5. 白鳥座 X-1 (Cygnus X-1)

太陽から 6000 光年離れた X 線源で、連星系をなしている。その伴星はブラックホールの有力な候補。他方の恒星のガス成分を吸い込む過程で生じる回転円盤は、降着円盤と呼ばれる。

AAPPSだより

AAPPS-DPP設立とその活動報告

AAPPS（アジア太平洋物理学会連合：http://www.aapps.org/）は高部会員のAAPPS便り（2005年）にあるように，グローバル化が進む21世紀において世界第3極の物理学会連合を担う組織で，アジア太平洋物理学国際会議（APPC）の開催や機関誌（AAPPS Bulletin）を発行しています．APPCは長い歴史があるにもかかわらず，2013年幕張メッセで開催したAPPC-12が日本で開催された最初のAPPCでした．永宮AAPPS会長兼APPC組織委員長（当時）を中心にAPPC-12ではこれまでの記録を上回る1,290名の参加を得たことはすでに報告されているところです．プラズマ物理関係では，領域2，天文学会，地球電磁気・地球惑星圏学会，応物プラズマエレクトロニクス分科会等の協力を得て306編の発表が行われました．

APPC-12での実績を踏まえ，永宮先生の依頼を受けて，アジア太平洋物理学会連合下で最初の部門としてプラズマ物理部門（DPP; Division of Plasma Physics）を立ち上げました．DPP設立にあたっては，日本物理学会，応用物理学会，中国物理学会（北京），オーストラリア物理学会，韓国物理学会，インド物理学会，台湾物理学会，シンガポール物理学会，香港物理学会，マレーシア物理学会，ネパール物理学会，タイ物理学会，フィリピン物理学会から100名弱の賛同者を集めて，AAPPS理事会に提案書を上奏し，2014年1月のAAPPS理事会で設立が承認されました．AAPPSの部門規定にのっとり，部門長候補者を提案することが条件とされており，創設提案書のメンバーの互選により私が初代の部門長を引き受けることになりました．

それをうけて，日本物理学会前総務理事の永井治男氏の尽力により2014年2月1日にはホームページ（http://aappsdpp.org/AAPPSDPPF/index.html）を立ち上げました．1年間で3,000人以上の訪問者を迎えており，会員への重要なニュースソースとなっています．2014年2月27日には分野別副部門長：Liu Chen（中国），A. Sen（インド），白谷正治（日本），Z. Sheng（中国），D. Ryu（韓国），M. Hole（オーストラリア），事務局長：L. Hau（台湾），事務局（永井治男，今寺賢志）を選出，2015年1月30日にL. Hauをスペースプラズマ担当の副部門長に，タイのT. Onjunを事務局長に入れて，ASEANからも執行部入りを致しました．2014年3月6日から会員登録（会費は無料，要会員推薦者：http://aappsdpp.org/AAPPSDPPF/join.html）を開始しました．会員数は2015年2月18日で1,265名となっております．日本物理学会会員の一層の入会をお待ちいたしております．また，DPPのロゴを7月17日に決定，会員への情報伝達方法として，2014年4月22日から会員全体へのメーリングサービスを行っています．

さらに，2014年4月9日にはプラズマ物理部門の最高助言機関としてI-HAC（International Honorary Advisory Committee: 議長P. Kaw（インド））を組織化し，I-HACへの最初の諮問として，4月17日にはプラズマ物理学に関する顕著な業績に対して贈るS. チャンドラセッカール賞の設立を諮問いたしました．答申は5月8日に出され，設立に向けて作業を開始し，中国成都の西南物理研究所傘下の会社とスポンサー契約を結び，7月30日には会員にスブラマニアン・チャンドラセカール賞の設立と候補者の推薦を全会員に募りました．10月31日までに日本，中国，オーストラリア，台湾から応募があり，選考委員長には韓国の元ポステック加速器センター長Won Namkung教授を選定し，インド，中国，韓国，オーストラリアから各2名，台湾1名を選出して厳正な審査を行って頂き，名誉ある第1回チャンドラセカール賞受賞者として一丸節夫東大名誉教授が選定されました．ちなみに，日本からの選考委員には三間圀興阪大名誉教授，寺澤敏夫東大宇宙研教授にお願い致しました．

磁場核融合研究や太陽表面のフレアーなどで研究されているプラズマは，クーロン力による位置エネルギーに比べて運動エネルギーが圧倒的に大きな弱結合プラズマです．一方，天体中心部のプラズマや固体中の電子ではクーロン力による位置エネルギーが運動エネルギーより大きくなります．このようなプラズマを強結合プラズマと呼びます．また，実験室プラズマとして良く知られている強結合プラズマにはダストプラズマやトラップ中のイオン系があります．

一丸節夫教授は，当該分野の理論体系を創設した研究者であり，米国物理学会の著名な論文誌Reviews of Modern Physicsに1982年に掲載された氏の強結合プラズマ理論に関する総合報告は引用回数が900回弱を数えます．また，その適用の例としては金属密度域の電子液体の静的及び動的特性，強結合プラズマにおける結晶構造からガラス構造への転移理論，高密度水素の金属絶縁体転移を含む状態図の理論などを構築されました．また，強結合プラズマにおける特有の現象として，核融合反応率の増幅現象についても正確な評価を行い，白色矮星中心部における反応などに適用されています．

一丸節夫教授は，天体プラズマ研究においても重要な貢献をされ，恒星質量ブラックホールや中性子星のようなコンパクト天体を含む連星系における高温・高密度の降着プラズマの物理過程を解明し，もって降着するプラズマに投入される巨大な重力エネルギーがX線を中心とした豊富な電磁放射に変

図1　第1回チャンドラセッカール賞受賞者：一丸節夫先生.

下列左より，H. Y. Choi（韓），M. Raharti（インドネシア），C. R. Chang, R. Robinson（豪），S. Nagamiya（日，機関誌編集長），S. Kim（韓，AAPPS 会長），G. L. Long（中，AAPPS 副会長），M. Kikuchi（日，DPP chair），S. P. Chia（マレーシア），Y. Kuramoto（日，物理学会），X. Zhu（中）；上列右より：S. P. Kim（韓，AAPPS 事務局），S. X. Du, N. Q. Liem（ベトナム），H. J. Choi, M. Iwamoto（日，応物学会），L. Tang（香港），S. C. Haur, F. J. Kao（台湾），L. C. Kwek, S. Nam.

換される機構を解明されました．

本賞は毎年 1 名選考致しますが，授賞式と受賞講演は 2016 年 12 月 4–8 日にオーストラリアブリスベンで開催される APPC-13 で行います．

プラズマ物理部門では，今後独自の国際会議や年会の開催を想定してはいますが，すでに多くのプラズマ関係の国際会議が行われていることを踏まえ，会員に有益な国際会議として West Lake Symposium（杭 州），Asia-Pacific Transport Working Group Conference（日中韓），East Asia Plasma School and Workshop（日中韓），アジア太平洋プラズマ理論国際会議，総研大冬のプラズマ学校（核融合研），ASEAN プラズマ・核融合学校（タイ）を講師の派遣を含めて共催 / 協賛しており，今後拡大していく予定です．

AAPPS の各部門は理事会に活動報告を行うことが規定されており，2015 年 2 月 6–7 日にソウルで開催されたアジア太平洋物理学会連合理事会で第 1 号部門としてその活動報告を行いました．理事会には，金 AAPPS 会長兼韓国物理学会会長をはじめアジア・オセアニア各国の物理学会長もしくは会長経験者が一同に集まっており，今後のアジア連携にとって重要な組織となります．今回の理事会では，第 2 号部門として Division of Astrophysics, Cosmology and Gravitation（DACG）も提案され，今後 AAPPS 傘下の部門形成が進むことが予想されます．

プラズマ物理部門では，今後も活動の幅を広げるとともに，アジア太平洋地区のプラズマ物理分野の糾合に向けて活動を続けて参ります．物理学会会員のより一層の入会とご協力をお願いできればと思います．

菊池　満　AAPPS-DPP 部門長，
領域 2 元代表

（2015 年 3 月 31 日原稿受付）