

Oyo-Buturi International

Interview

Professor Kunio Tada, the President of The Japan Society of Applied Physics

Professor Tada was born in Tokyo. He received his doctorate from the University of Tokyo in 1965, after which he joined the Faculty of Engineering as a lecturer and became a full professor in 1981, and from 1972 to 1973 he was a visiting scholar at the University of Pennsylvania. An expert on semiconductor devices, he is currently conducting research on semiconductor photonic devices. He was awarded the Hattori-Hoko Prize in 1978 for his contribution to the development of the optical directional coupler modulator/switch. Professor Tada is President of the Japan Society of Applied Physics (jsap) and is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE).

To commemorate the launch of *Oyo-Buturi International* (obi), we have asked Professor Tada to talk to us about the jsap, science and education.

OBI: Can you tell us something about the international activities being pursued and planned by the jsap?

Professor Tada: The jsap wants to be a full and active member of the international scientific community and we have already initiated a number of projects in order to achieve this goal. For example, we have established mutual cooperation agreements with five academic societies overseas where the members of the overseas societies are allowed the same privileges as jsap members, such as jsap member rates for journals and participation in conferences, and vice versa. Details of the agreements can be found in the jsap journal and also our home page, which is written in both Japanese¹ and English². To give an overview, we have cooperation agreements with: The American Physical Society (aps), European Physical Society (eps), Institute of Physics (iop), Optical Society of America (osa), and Electron Devices Society (eds) of the IEEE. We are now in the process of setting up an agreement with the Lasers and Electro-Optics Society (leos) of the IEEE which we hope to sign towards the end of 1997. We would like to encourage overseas scientists to take part in the two major conferences held by jsap in the spring and autumn of each year where English abstracts and presentations are most welcome. Even though this jsap monthly journal is written in Japanese, the titles and abstracts of the papers are written in English. Our home page also has articles and reviews in English. We hope that this new *Oyo Buturi International* section will be useful as a source of information for the members of the international commu-



In India, July 1994

nity who are interested in scientific and cultural activities in Japan. We also hope that the *Japanese Journal of Applied Physics* and *Optical Review*, both published in English, will make an even greater contribution to the international community.

OBI: Thank you for that review of jsap activities. Now let's move on to the topic of education and science.

OBI: What do you think about the proposal to introduce the *Tobikyu*³ system for physics high school students?

Professor Tada: I do not think that it is necessary. Bright students can manage without this sort of special treatment. Instead, I think that high school and undergraduate students should be encouraged to study a wider range of subjects such as arts, languages and social sciences, and not confine their ideas to such a limited field at such a young age. But at the graduate school level I think that it would be reasonable to let science doctoral students who have excelled in their field to graduate after 3 to 4 years instead of the present 5 years that it normally takes to complete the course in Japan. However, only a few students have completed their research in 4 years at the Graduate School of Engineering of this University since this system started only recently.

OBI: Let us look to the future and the 21st century. What inventions or ideas would you like to see in the next century?

Professor Tada: I think that there are a lot of problems that will need addressing including energy, raw materials, food supply, environmental pollution, and population growth. The solutions will depend on peoples' politics, culture, religion and so on. Inventions to solve these problems would be most welcome. These are difficult problems and I hope that we can find solutions that will prevent a major human crisis and that science and technology will make significant contributions to finding these solutions.

OBI: I would like to ask your views about science and children. How do you think we should encourage young children to take an interest in science?

Professor Tada: I think the first step would be to encourage them to make things and break things and build things by using their own hands.

OBI: On a similar theme, do you have any suggestions for stopping the tide of young people moving away from science and technology?

Professor Tada: I think there would be more interest in science and technology as a profession if industry paid better salaries. But it is related to supply and demand and you will probably agree that interest in science and technology as a career increases during an economic recession

OBI: Now on a slightly lighter note, can you tell us a little about your hobbies and past-times?

Professor Tada: One of my hobbies is travelling. I have visited more than 35 countries and I particularly enjoy travelling by train. I am a "railway enthusiast". I find that travelling by train is the best way to experience a country at first hand. I like steam locomotives the most of all. They are used mainly in theme parks by tourists in Europe and USA but in China, and of course India where I have been three times, they are still used as regular transport. I also enjoy reading books about the history and geography of countries.

OBI: What kind of novels do you like most?

Professor Tada: I used to enjoy reading books by Sato Haruo such as *Den-en No Yuutsu*.

OBI: Again changing the subject, if you were asked to host some overseas visitors coming to Japan for the first time, where would you take them to show them a representative aspect of modern Japan?

Professor Tada: I would first take them to Tokyo Station. This is perhaps the busiest station in the world where the trains carry millions of people every day to and from all over Japan efficiently and safely. This could be seen to represent modern Japan and its ability to organize. The sight should give a first-time visitor a feeling of modern Japan.

OBI: And finally, I would like you to consider the following scenario. Assuming that you had a plentiful supply of food, adequate shelter and clothing, what three things would you like to have with you if you were stranded on a desert island?

Professor Tada: Boredom would be the main problem. So the three things would be a comprehensive encyclopedia, a television or radio and the final choice would be a set of materials/tools for making model trains. That would be enough to keep me occupied until a ship passed by!

References

1. The jsap Japanese home page:
<http://wwwsoc.nacsis.ac.jp/jsap>
2. The jsap English home page:
<http://wwwsoc.nacsis.ac.jp/jsap/english/>
3. The Japanese term *tobikyu* refers to a proposed system of education that would allow extremely able high school and university students studying physics to graduate one year earlier than the normal. This subject is a source of heated debate in Japan.

Conference Review

The 58th Autumn Meeting of The Japan Society of Applied Physics (JSAP), Akita University, Akita Prefecture, Japan, 2-5 October 1997

The jsap holds two major annual meetings: the Spring Meeting, held in the Kanto region in or close to Tokyo, and the Autumn Meeting held in areas of Japan far from Tokyo. Presentations can be made in either English or Japanese by any member of jsap or affiliated societies. In general, all submissions are accommodated. Abstracts of the presentations, posters and symposia were available in four volumes at the conference. Further information about this and related conferences is available upon request from Oyo Buturi International.

This year's Autumn Meeting was held at Akita University, Akita Prefecture². The recent extension of the Tohoku *Shinkansen* (high speed train) to Akita enables the journey to be made in four and a half hours and a flight from Tokyo's Haneda Airport is even faster, taking approximately one hour. Except for the last day, the weather for the duration of the conference was dry and pleasant. The jsap Organising Committee would like to express their gratitude to Akita University for its support in making the conference a success. There was a total of 4045 presentations made at this meeting. This is the second highest number of presentations ever made at the Autumn Meeting; the greatest number to-date was 4082 at the Hokkaido Meeting in 1993. A total of 6101 participants registered for the Meeting and it was encouraging to see an increase in the number of students attending. The 21st jsap School was held on the third day of the Meeting and was well attended with 191 participants. The theme this year was "New Axis of Silicon Devices-The Future after dram".

Table. Recent participation trends

Year	1993	1994	1995	1996	1997
Presentations	4082	3749	3632	3794	4045
Participants	5611	6573	5859	5961	6101
Location	Hokkaido University	Meijo University	Kanazawa Institute of Technology	Kyushu Sangyo University	Akita Univeristy

"The jsap Meeting Award" was awarded to 39 jsap members by Professor Tada, President of jsap. This Award was established in 1996 to commemorate the 50th anniversary of the founding of jsap in its present form. The annual jsap buffet dinner was held at The Akita View Hotel on the first evening. Members of the local organising committee had worked hard to make this a memorable occasion and had arranged a demonstration of the famous Akita *kan-ton* Festival prior to the dinner; they had also selected 100 different types of local sake (rice wine) for the participants enjoyment. The gathering was attended by many young researchers and was a good opportunity both to meet old friends and acquaintances and to make new ones.

A total of 59 companies exhibited their products in the poster session hall. Future plans for encouraging even greater interest in this meeting include displaying all the program details on the jsap www home page as well as in the Oyo Buturi Journal¹; timely symposia, tutorials, schools etc., that reflect the demands of researchers in this field will also be organised.

References

1. Enquiries in English or Japanese to
jsapedit@mb.infoweb.ne.jp
2. English Information on Akita arts, crafts and festivals: <http://www.media-akita.or.jp/>

Science and Technology News

Festival UK 98. To enhance British awareness in Japan and further promote bilateral links the British Embassy and British Council are currently coordinating a full calendar year of British and British related events. These include a Tate Gallery exhibition, a Science and Lifestyle exhibition with numerous exhibits from the British Science Museum, British Motor show and other cultural events. Further details are available on the Festival uk98 web page:

<http://www.uk98.or.jp/> or from the British Council: Phone +81 3 3235 8031, Fax +81 3 3235 8040

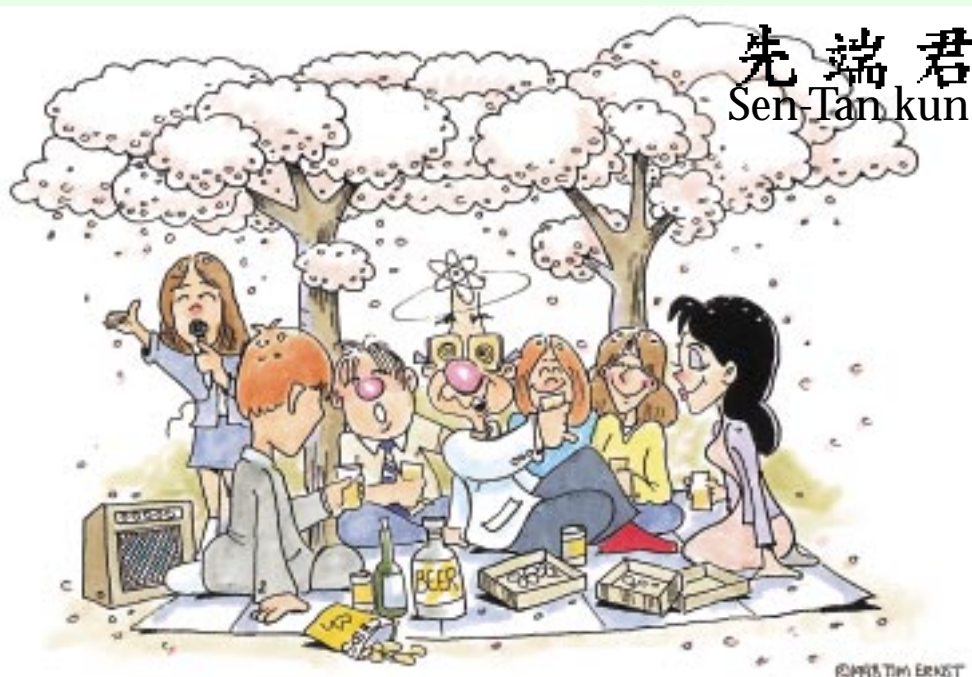
JSAP Spring Meeting will be held March 28-31, 1998 at Tokyo Engineering University.

<http://wwwsoc.nacsis.ac.jp/jsap>.

Publications

Gaijin Scientist. An interesting and informative publication containing information relevant to working in Japan as a foreigner in a technical field. Available in hard copy and at <http://japan.co.jp/stag/gaisci>. 2310 Yen (Genkin Kakitome). bccj, 3f Kenkyusha Eigo Centre Bldg., 1-2 Kagurazaka, Shinjuku-ku, Tokyo 162.

Handbook of International Collaboration 1997. Comprehensive resource detailing international collaborations between Japan and the rest of the world. Both English and Japanese. Published by Yoshida Science Foundation (1997). 3600 Yen. 502 Mezzon-Yonbancho, 6-4 Chiyoda-ku, Tokyo. Phone +81 3 3263 4916



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www.wg.omron.co.jp/cgi-bin/je/. An excellent on-line English/Japanese, Japanese/English dictionary. Just cut and paste and decipher those troublesome Kanji!

www.dgs.monash.edu.au/~jwb/japanese.html
If you're interested in Kanji then Jim Breen's page is worth a look. It contains information about the public domain edict Japanese/English dictionary which can be downloaded for local use. A source of links and information about Japan, Kanji and the Japanese language.

www.sla.purdue.edu/fll/JapanProj/AutoGloss.html
A program which generates a Japanese/English glossary of words from any Japanese text. Also available as a free on-line service by sending email to mail-gloss@intersc.tsukuba.ac.jp. The first line of a message must only contain makelist with the text starting on the second line. Uses edict dictionary mentioned above.

www.rain.org/~ssa/judomenu.html
Interested in martial arts? This page has all you need to know about Judo.

Scientific Japanese

As in any language, there are words in specialist fields which do not appear in dictionaries of the standard vocabulary. In this section, an abstract from this month's *Oyo-Buturi* is translated into English and a vocabulary of scientific and technical Japanese terms is presented.

だいに かいこくさいびしやうじゅうりよくじっけんしつ うちゅうじっけん
第2回国際微小重力実験室と宇宙実験・
かんそく え じっけんけつか
観測フリーライヤで得られた実験結果
いちぶ しょうかい びしやうじゅうりよくか
の一部を紹介する。微小重力下での
はんどうたいぎりようじっけん へき ひせつしよく
半導体材料実験は、アンブル壁と非接触
せいちょう そうしやう はつせい
で成長できるため双晶が発生しないこ
まかつ けつしやうそせい びりやうふじゅんぶつとうど
と、膜厚、結晶組成、微量不純物濃度、
でんきてき こうがくてきとくせい きんいつせい こうじやう
電氣的・光学的特性の均一性が向上する
など おお りてん
こと等の多くの利点がある。しかし、ボ
こんにゆうなど もんだいてん のこ
イドの混入等の問題点も残されており、

こんご うちゅうきちなど りよう おお けんきゅう
今後、宇宙基地等を利用した多くの研究
ひつよう
が必要である。

We present a part of the experimental results obtained by the Second International Microgravity Laboratory and the Space Experiment/Observation Free-Flyer. There are several advantages for performing experiments with semiconductor materials under microgravity, such as the ability to grow crystals without coming into contact with the walls of the growth vessel, leading to twin-free crystals, and the improvement in the uniformity of film thickness, composition, impurity concentration, and electrical and optical properties. However, problems such as the incorporation of voids remain requiring extensive research using such facilities as the space station.

微小	bishoo	very small
重力	gyuryoku	gravity
微小重力	bisho-gyuryoku	microgravity
実験	jikken	experiment
実験室	jikken-shitsu	laboratory
実験結果	jikken-kekka	experimental results
半導体	handotai	semiconductor
材料	zairyo	material
アンブル壁	anpuru-heki	ampoule wall
双晶	sosho	twinned crystal
結晶	kessho	crystal
組成	sosei	composition
微量	biryo	very small quantity
不純物	fujunbutsu	impurity
濃度	nodo	concentration
均一性	kinitsu-sei	uniformity
ボイド	boido	void

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