

Notices from the ISMS

March 2007

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For the Welfare of the Humankind
Promoting Mathematical Sciences

INTERNATIONAL SOCIETY FOR MATHEMATICAL SCIENCES Scientiae Mathematicae Japonicae, Notices from the ISMS

The International Society for Mathematical Sciences (ISMS) is an international society consisting of mathematical scientists throughout the world.

The main activities of the ISMS are to publish (1) the (**print and online**) journal **Scientiae Mathematicae Japonicae (SCMJ)** and (2) Notices from the ISMS and to hold **assembly meetings** in Japan and **international internet meetings** (distance symposium) of mathematical sciences (IVMS) accessible from all over the world.

SCMJ is the 21st Century New Unified Series of **Mathematica Japonica (MJ)** and **Scientiae Mathematicae (SCM)**. **MJ** was first published in 1948 and was one of the oldest mathematical journals in Japan. **SCM** was an online and print journal started in 1998 in celebration of the semi-centennial anniversary and received 26000 visits per month from 50 countries in the world. **SCMJ** contains original papers in mathematical sciences submitted from all over the world and receives **38000** visits per month now. Not only papers in pure and applied mathematics but those devoted to mathematical statistics, operations research, informatics, computer science, biomathematics, mathematical economics and other mathematical sciences are also welcome. The journal is published in January, March, May, July, September, and November in each calendar year.

The ISMS has enhanced the journal, beginning from July 1995, by including excellent Research-Expository papers in the section "**International Plaza for Mathematical Sciences**" as well as original research papers. The section provides papers dealing with broad overviews of contemporary mathematical sciences, written by experts mainly at our invitation. Papers shedding lights on open problems or new directions or new breakthroughs for future research are especially welcome.

As is shown in the **Editorial Board of SCMJ**, we have invited **many distinguished professors** of 20 countries as editors, who will receive and referee the papers of their special fields with their **high standard**.

Beginning from 2007, we make the online version of SCMJ more readable and convenient to the readers by adding the specialized contents. By this, the readers can access to the online version, in which the papers appear in the order of acceptance, from (i) the contents of the printed version, and (ii) the specialized contents of a volume. From 2007, the subscription fee of the printed version plus the online version of SCMJ becomes lower and the same of the printed version only. Therefore, the subscribers of the printed version can read the online version without no additional cost.

For benefit of the ISMS members, we publish "Notices from the ISMS" 6 times a year. We are enhancing it by adding interesting articles, including book reviewing, written by eminent professors.

The ISMS has set up a **videoconferencing system (IVMS)** which can connect up to twenty sites of a research group in the same or **different countries in the world**. Using this system, speakers of the session can write on a white board or an OHP sheet or use PowerPoint. On the other hand participants can ask questions or make comments from any connected site in the world.. All these are performed similarly to the traditional meetings.

To connect with our system, you can use your own videoconferencing system only if it satisfies the International Telecommunication Union-Technical Committee Standards (ITU-T Standard).

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BOOK REVIEWS

Notices from the ISMS

March 2007, Pages 1-3

Mathematics in Population Biology, by Horst R. Thieme, Princeton Series in Theoretical and Computational Biology, Simon A. Levin, Series Editor, Princeton University Press, Princeton and Oxford, 2003, 543+xx pp., ISBN 0-691-09291-5.

Biological growth laws and pattern formation represent a huge source of mathematical models able to give rational understanding of the complex living world. However the idea to use mathematics in order to explain biological processes is quite new and has its own pioneers. Here are some basic moments of its development:

1798: MALTHUS, T.R., An essay on the principle of population, J Johnson in St Paul's Churchyard, London.

1838: VERHULST, P.F., Notice sur la loi que la population suit dans son accroissement, *Corr. Math. Et Phys.* 10, 113-121.

1845: VERHULST, P.F., Recherches mathématiques sur la loi d'accroissement de la population, *Mem. Acad. Roy. Brussels*, 18, 1-38.

1847: VERHULST, P.F., Recherches mathématiques sur la loi d'accroissement de la population, *Mem. Acad. Roy. Brussels*, 20.

1911: SHARPE, F.R. & LOTKA, A.J., A problem in age distribution, *Phil. Magazine*, 21, 435-438.

1922: LOTKA, A.J., The stability of the normal age distribution, *Proc. Nat. Acad. Sci.* 8, 339-345.

1923: LOTKA, A.J. & SHARPE, F.R., Contributions to the analysis of malaria epidemiology, *Am. J. Hygiene* 3, 1-21.

1925: LOTKA, A.J., *Elements of physical biology*, Williams & Wilkins, Baltimore.

1927: KERMACK, W.O. & McKENDRICK, A.G., A contribution to the mathematical theory of epidemics, *Proc. Royal Soc. London* 115, 700-721.

1932: KERMACK, W.O. & McKENDRICK, A.G., Contribution to the mathematical theory of epidemics, part. II, *Proc. Royal Soc. London* 138, 55-83.

Date: January 11, 2007

Communicated by Ioan A. Rus, Dept. of Applied Mathematics, Babes-Bolyai Univ., Romania

1933: KERMAK, W.O. & MCKENDRICK, A.G., Contribution to the mathematical theory of epidemics, part. III, Proc. Royal Soc. London 141, 94-112.

1926: VOLTERRA, V., Variazioni e flettazioni del numero d'individui in specie animali conviventi, Mem. Acad. Sci. Lincei 2, 13-31.

1931: VOLTERRA, V., Leçons sur la théorie mathématique de la lutte pour la vie, Gauthier - Villars, Paris.

Many books in mathematical biology have been written in the last decade, such as

MURRAY, J.D., Mathematical biology, Springer, 1989.

BUSENBERG, S. & COOKE, K., Vertically transmitted diseases. Models and control, Springer, 1993.

DIEKMANN, O., DURRETT, R., HADELER, K.P., MAINI, P. & SMITH, H.L., Mathematics inspired by biology, Springer, 1999.

DIEKMANN, O. & HEESTERBEEK, J.A.P., Mathematical epidemiology of infectious diseases; model building, analysis and interpretation, Wiley, 2000.

ANITA, S., Analysis and control of age-dependent population dynamics, Kluwer, 2000.

BRAUER, F. & CASTILLO-CHAVEZ, C., Mathematical models in population biology and epidemiology, Springer, 2001.

RASS, L. & RADCLIFFE, J., Spatial deterministic epidemics, AMS, 2003.

BRITTON, N., Essential mathematical biology, Springer, 2003, to name just a few of them.

The Thieme's book is organized around some basic biological topics, going from concrete processes, through their mathematical modelling, to the analysis of the corresponding models, and back to the initial processes, with the qualitative conclusions and verification.

The book is organized on three parts and a fourth part of mathematical tools. Part I (Basic Population Growth Models) is mainly concerning with single-species population models. The contents of this part include: the fundamental balance equation of population dynamics, classic models of density-dependent population growth, discrete-time single species models, dynamics of an aquatic population interacting with a polluted environment and population growth under basic stage structure.

Part 2 (Stage Transitions and Demographics) is more fully devoted to the theme of stage transition. Here it is assumed that the stage transition (for example, from the juvenile stage to the adult one) depends on the time an individual has already spent in the stage, and there are given answers to typical questions such as: how long does it take to go through a certain stage? How is the number of individuals in a stage and the number leaving the stage (stage output) related to the number of individuals entering the stage (stage input)? How does the average age in a population depend on the mortality? Although the models are not stochastic, the analysis in this part makes use of some probabilistic tools.

Part 3 (Host-Parasite Population Growth: Epidemiology of Infectious Diseases) is

devoted to mathematical models in epidemiology and specific topics: epidemic threshold, disease-free and endemic equilibrium, extinction and persistence of the disease, optimal vaccination, endemic models with multiple groups of populations etc.

Compared to other books on dynamics of populations, most of them focussing on models of two species in competition, the main theme of the present book giving it unity and originality, is the theme of stage structure (age-structure, stages of infection etc.). Its treatment requires mathematical notions and tools of phase-plane analysis such as: equilibrium solutions, periodic orbits, homoclinic orbits, isoclines, Hopf bifurcation etc.

Without doubt, this a very inspiring book, with a good balance between biological interpretation and mathematical results, a good introduction to the subject as well as a reference for applied mathematicians and researchers in biomathematics.

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Communications:

(1) Conferences for Young Algebraists

Klaus Denecke*

The following list gives some information on the future conferences of young algebraists:

1. AAA Tampere (Finland), June 7-10, 2007
2. CYA (75. AAA), Darmstadt (Germany), November 1-4, 2007
3. AAA Linz (Austria), May 22-25, 2008
4. CYA (77. AAA), Potsdam, Februar 2009
(dedicated to K. Denecke)
5. AAA Bern (Switzerland), June 11-14, 2009
6. CYA (79. AAA), Olomouc (Czech Republic), February 2010

See also pages 10 and 11 of Notices from the ISMS, January 2007.

(2) Announcement of Meetings in Topology

Communicated by Gerhard Preuss**

July 2007

Summer Conference on Topology, and its Applications 2007 Unibversitat Jaume I, Castellón, Spain.

Organizers: J. Font, J.Galindo, S.Hernandez, S.Macario, M.Sanchis, A.Rodenas

See: www.sumtop07.uji.es

*Klaus Denecke is a professor of University of Potsdam, Institute of Mathematics, an Editor of SCMJ, and an Editor of Notices from the ISMS.

**Gerhard Preuss is a professor of Freie Universität Berlin, FB Mathematik, an Editor of SCMJ, and an Editor of Notices from the ISMS.

August 6-August 12, 2007:

International Conference on Quantum Topology, Hanoi Institute of Mathematics
Hanoi, Vietnam

Description: The conference aims to educate young researchers in Quantum Topology,

Discuss new developments in the area, and bring together different points of view of Geometry, Topology, Algebra, and Quantum Field Theory.

Organizers: Do Ngoc Diep and Nguyen Viet Dung (Institute of Mathematics, Hanoi, Vietnam), Stavros Garoufalidis and Thang Le (Georgia Tech).

Scientific Committee: C.Gordon, University of Texas, Austin, V.Jones, University of California, Berkeley, V.Trraev, University of Strasbourg.

See: <http://www.math.gatech.edu/~stavros/vietnam.html>

(3) Announcement of QTNA 2007

Communicated by Wuyi Yue*

The Second Asia-Pasific Symposium on Queuering Theory and Network Applications (QTNA2007)

August 1-August 4, 2007 International Conference Center, Kobe, Japan

Webpage of QTNA2007 is: <http://www.iict.konan-u.ac.jp/QTNA2007/>.

See also page 6 of Notices from the ISMS, November 2006.

(4) BIOCAMP2007

Communicated by L.M. Ricciardi **

Stimulated by some friends, and on the grounds of the successful experience of *BIOCAMP2002* and "*BIOCAMP2005*: Conferences, Prof. L.M. Ricciardi has now been induced to plan another Conference to be held in the same location (Vietri sul Mare, Italy), September 24-28, 2007.

The title is *BIOCAMP2007 - Collective Dynamics: Topics on Competition and Cooperation in the Biosciences*.

The title is motivated by the nature of our sponsors and supporting grants, but the main purpose of this Conference is to bring together a limited number of well-known specialists in the fields of applied mathematics, physics and theoretical biology for an in-depth discussion of model building and computational strategies in some selected areas of the life sciences with special emphasis on theoretical neurobiology, molecular motors and quantitative problems in ecology and population dynamics.

This will be implemented through a program of plenary talks, parallel sessions and a poster session.

The interdisciplinary nature of the conference will allow cross-fertilization of recent advances in applied nonlinear mathematics and computational approaches. Several invited lectures on different topics of biomathematical interest will also be given, especially tailored on the needs of graduate students and young researches.

* Wuyi Yue is a professor of Konan University, an Editor of SCMJ, and an Editor of Notices from the ISMS.

** L.M.Ricciardi is a professor of Dipartimento di Matematica e Applicazioni, Universita di Napoli Federico II, and an International Advisor of SCMJ.

(5) The 7th International Conference on Optimization (ICOTA 7)

Communicates by Wuyi Yue

The 7th International Conference on Optimization(ICOTA 7) : Techniques and applications

December 12-December 15, 2007, International Conference Center, Kobe, Japan

ICOTA webpage is: <http://www.iict.konan-u.ac.jp/ICOTA7/>

See also pages 8 of Notices from the ISMS, November 2006.

Confidence Vote

On February 20, 2007, we closed registration of candidates for Secretaries (Officers) who are to be elected based on Article 4 of newly enacted Bylaws 2007. The ISMS members are requested to vote, confidence (Yes) or non-confidence (No), to the following candidates. The vote can be made from the web: (http://www.jams.or.jp/hp/tohyo/Officers_tohyo_E.html), by e-mail to pgp7j@jams.jp, by fax to: 81-72-222-7987, or by airmail to: International Society for Mathematical Sciences, Minami Hanadaguchi, Sakai, Sakai-ku, Osaka 590-0075, Japan. The vote should be made between March 3, 2007 and March 31, 2007. When you vote by fax or airmail, please use the following as the ballot paper.

Your Name and Membership No.			
E-mail address			
		Names of Candidates	
1. Publishing	SCMJ	Shunsuke Sato, Japan	Yes No
	Notices	W.W. Comfort, USA	Yes No
		K. Denecke, Germany	Yes No
		S.S. Kutateledze, Russis	Yes No
		I.A. Rus, Romania	Yes No
		D.Przeworska-Rolewicz, Poland	Yes No
2. Meetings	IVMS	K. Szajowski, Poland	Yes No
		Juniti Nagata, Japan	Yes No
		Shizu Nakanishi, Japan	Yes No
	International Co-sponsored Meeting	Wataru Takahashi, Japan	Yes No
		A. Favini, Italy	Yes No
		G. Preuss, Germany	Yes No
		L.M. Ricciardi, Italy	Yes No
3. Business Administration	Individual Members	A.V. Arhangel'skii, Russia	Yes No
4. Prize	Kunugui	J.B. Conway, USA	Yes No
	Kitagawa	A. Salomaa, Finland	Yes No
		P.K. Sen, USA	Yes No

Call for Academic and Institutional Members

Discounted subscription price: When organizations become the Academic and Institutional Members of the ISMS, they can subscribe our journal *Scientiae Mathematicae Japonicae* at the yearly price of US\$300. At this price, they can add the subscription of the online version upon their request.

Invitation of two associate members: We would like to invite two persons from the organizations to the associate members with no membership fees. The two persons will enjoy almost the same privileges as the individual members do including the discount of the page charge. Although the associate members cannot have their own ID Name and Password to read the online version of SCMJ, they can read the online version of SCMJ at their organization.

To apply for the Academic and Institutional Member of ISMS, please use the following application form.

Application for Academic and Institutional Member of ISMS

Subscription of SCMJ Check one of the two.	<input type="checkbox"/> Print (US\$300)	<input type="checkbox"/> Print + Online (US\$300)
University (Institution)		
Department		
Postal Address where SCMJ should be sent		
E-mail address		
Person in charge	Name: Signature:	
Payment Check one of the two.	<input type="checkbox"/> Bank transfer	<input type="checkbox"/> Credit Card (Visa, Master)
Name of Associate Membership	1.	
	2.	

Call for regular Members
ISMS Membership Dues from 2007

A new category "life member" has been established and can be applied for from 2005. An eligible member may become a life member by making a one-time payment of dues. A member who has been an ISMS member for ten years or more is eligible for a life member. The amounts of dues are : ¥70,000 for the domestic members, US\$ 600 (€480) for the foreign members, and US\$ 500 (€400) for the members in developing countries.

We have reduced the ISMS membership dues since 2001 and copies of the printed journal have not been distributed to the members, free of charge. Instead, we give User Name and Password to each member so that he/she can view or print out the full text of the papers published in SCMJ except papers in the international plaza from our Web site (<http://www.jams.or.jp>).

The Membership Dues for each category is as follows. Applications for the 3-year members can be made only in 2005 and in every three years.

Membership Dues for 2007

Membership	JAPAN	S-JAPAN	Foreign	S-Foreign	Developing
1-year	A1 ¥7,000	SA1 ¥3,500	F1 US\$50 €40	SF1 US\$30 €24	D1 US\$30 €24
3-year	A3 ¥18,000	SA3 ¥9,000	F3 US\$120 €96	SF3 US\$60 €48	D3 US\$70 €56
Life Member	Life ¥70,000	Life ¥70,000	FL US\$600 €480	FL US\$600 €480	DL US\$500 €400

Category D is for those who reside in the countries of Eastern Europe, CIS or developing countries. Category S is for students and for the aged (older than 70). The figure 1 and 3 means a year and 3 years respectively.

Payment Instructions

Payment can be made through a post office or a bank, or by credit card. Members may choose the most convenient way of remittance. Please note that we do not accept payment by bank drafts (checks). For more information, please refer to an invoice.

Methods of Overseas Payment:

Payment can be made through (1) a post office, (2) a bank, (3) by credit card, or (4) UNESCO Coupons.

Authors or members may choose the most convenient way of remittance as are shown below. Please note that **we do not accept payment by bank drafts (checks)**.

(1) Remittance through a post office to our giro account No. 00930-1-11872 or send International Postal Money Order to our postal address (2) Remittance through a bank to our account No. 94103518 at Shinsaibashi Branch of CITIBANK (3) **Payment by credit cards** (AMEX, VISA, MASTER or NICOS), or (4) Payment by UNESCO Coupons.

Methods of Domestic Payment:

Make remittance

(1) to our Post Office Transfer Account - 00930-3-73982 or
 (2) to our account No.1565679 at SUMITOMO BANK, Sakai, Osaka, Japan.

All the correspondences concerning subscriptions, back numbers, individual and institutional memberships, should be addressed to the Publications Department, International Society for Mathematical Sciences.

****Membership categories and their membership dues**

Categories	Domestic	Overseas	Developing countries
1-year member	A1: ¥7,000	F1: US\$50, €40	D1: US\$30, €24
3-year member	A3: ¥18,000	F3: US\$120, €96	D3: US\$70, €56
1-year students or aged (1S)	SA1: ¥3,500	SF1: US\$30, €24	SD1: US\$20, €16
3-year students or aged (3S)	SA3: ¥9,000	SF3: US\$70, €56	SD3: US\$50, €40
Life member (L)	AL: ¥70,000	FL: US\$600, €480	DL: US\$500, €400

Category S is for students and for the aged (older than 70) and Category D is for those who reside in the countries of Eastern Europe, CIS or developing countries. The figures 1 and 3 mean one year and three years, respectively.

The members who have been the ISMS members for more than 10 years are eligible for L category.

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Special fields*		e-1 e-2 e-3 e-4 e-5 e-6 e-7 e-8 e-9 e-10 e-11 e-12	
E-mail address		Tel.	
		Fax	
Membership category** (Circle one)		A1, A3, SA1, SA3, F1, F3, SF1, SF3, D1, D3, SD1, SD3, AL, FL, DL	
Check the facilities your institution has.		<input type="checkbox"/> Conference room(s) for video conference <input type="checkbox"/> Computer center	
Communication system of your institution		<input type="checkbox"/> ISDN <input type="checkbox"/> IP	
Is your institution (university) an Institutional Member of ISMS?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> I subscribe to the printed version of SCMJ.		<input type="checkbox"/> ¥6,000 (US\$60, €48) per year for those members of A1, SA1, F1, and SF1, D1 and SD1. <input type="checkbox"/> ¥5,500 (US\$55, €44) per year for those members of A3, SA3, F3, SF3, D3, SD3, AL, FL, and DL. <input type="checkbox"/> In case A3, SA3, F3, SF3, D3, SD3, AL, FL, or DL members make the payment at a time in advance, the price for 3 years is ¥15,000 (US\$150, €120).	
For the aged member, write your birth year.		For the student member, student registration certificate should be attached.	
Date of Application			
I wish to enroll as a member of ISMS and will pay to International Society for Mathematical Sciences the annual dues upon presentation of an invoice. Copies of <i>Scientiae Mathematicae Japonicae</i> received as an ISMS member will be for my personal use only and shall not be placed in institutional, university or other libraries or organizations, nor can membership subscriptions be used for library purposes.			
Signature			

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ISMS Publications: We published **Mathematica Japonica (M.J.)**, which enjoyed an international reputation, for about sixty years in print and its offshoot **Scientiae Mathematicae (SCM)** both online and in print. In January 2001, the two publications were unified and changed to **Scientiae Mathematicae Japonicae (SCMJ)**, which is the "21st Century New Unified Series of Mathematica Japonica and Scientiae Mathematicae" and published both online and in print. Ahead of this, the online version of SCMJ was first published in September 2000. The number of the annual total pages of the print version has been from 900 to 1,200 pages in six issues since January 1978. The whole number of SCMJ exceeds 240, which is the largest amount in the publications of mathematical sciences in Japan. The features of SCMJ are:

- 1) About 90 eminent professors and researchers of not only Japan but also 20 foreign countries join the Editorial Board. The submitted papers are received directly by the editors and are refereed quickly. The accepted papers are published online with no lead time after compiling or proofreading. SCMJ is reviewed by *Mathematical Review* and *Zentralblatt* from cover to cover.
- 2) SCMJ is distributed to many libraries of the world. The papers in SCMJ are introduced to the relevant research groups for the positive exchanges between researchers.
- 3) The original papers and surveys of distinguished mathematical scientist appear in every issue of SCMJ. The section called "International Plaza" of SCMJ has very interesting expository papers written by the eminent mathematical scientist of the world. Presentations of recent research frontier including award lectures by the winners of the ISMS Prize or Shimizu Prize are made.
- 4) **ISMS Annual Meeting:** Many researchers of ISMS members and non-members gather and take time to make presentations and discussions in their research groups every year.
- 5) The ISMS holds inter-regional videoconferences called **International Videoconference of Mathematical Sciences (IVMS)** via internet. There is no need for the participants to travel abroad.

Privileges to ISMS Members: (1) Free access (including printing out) to the online version of SCMJ, (2) Discounted price for the printed version of SCMJ (See Table 1), (3) Discounted page charges (See Table 2).

Privileges to Institutional Members: (1) Two associate members can be registered, free of charge, from an institution. (2) The discounted page charges (Table 2) are applied to the associate members.

Table 1: Subscription Price (from 2007)

	Individual 1-year mem.	Individual 3-year mem.	Institutional member	List Price
Print / year	¥6,000 US\$60, €48	¥5,500 * US\$55, €44	¥33,000 US\$300, €240	¥45,000 US\$400, €320
Online/year	Free	Free	—	—
Online+Print /year	¥6,000 US\$60, €48	¥5,500 * US\$55, €44	¥33,000 US\$300, €240	¥45,000 US\$400, €320

Postal charge is US\$2 (€1.6) per issue. *In case three-year members make the payment at a time in advance, the price for 3 years is ¥15,000 (US\$150, €120). The authors can buy a copy of the print version at a price of ¥1,200 (US\$12) per issue including postage.

Table 2: Page Charge per printed page

	Individual/Associate Member	Non Member
Paper : P	¥3,850 (US\$35, €28)	¥4,450 (US\$43, €35)
TeX: T	¥2,200 (US\$18, €14)	¥2,800 (US\$26, €21)
ISMS style: Js	¥1,100 (US\$8, €7)	¥1,700 (US\$16, €14)

The above page charges include 20 offprints.

Table 3: Membership Dues for this year

Categories	Domestic	Overseas	Developing countries
1-year member (1A)	A1: ¥7,000	F1: US\$50, €40	D1: US\$30, €24
3-year member (3A)	A3: ¥18,000	F3: US\$120, €96	D3: US\$70, €56
1-year students or aged (1S)	SA1: ¥3,500	SF1: US\$30, €24	SD1: US\$20, €16
3-year students or aged (3S)	SA3: ¥9,000	SF3: US\$70, €56	SD3: US\$50, €40
Life member* (L)	AL: ¥70,000	FL: US\$600, €480	DL: US\$500, €400

*The members who have been the ISMS members for more than 10 years are eligible for this category. The categories 1S and 3S are for students or persons over 70 years old.