



International Symposium on Room Acoustics: Design and Science 2004



A Satellite Symposium of ICA2004 Kyoto, Japan <http://rads04.iis.u-tokyo.ac.jp>
Awaji Yumebutai International Conference Center, Hyogo, Japan April 11-13, 2004

Co-organised by the Organising Committee of RADS2004 & the Acoustical Society of Japan

RADS2004 PROGRAMME

Message from General Chairperson

Welcome to the International Symposium on Room Acoustics: Design and Science 2004, RADS 2004!

This symposium has been planned as a Satellite Symposium of ICA 2004, The 18th International Congress on Acoustics, in Kyoto. Historically, there were some well-organized satellite symposia of ICA which had been focused on room acoustics, for example, in Edinburgh as the satellite of ICA 1974 London, and in Vancouver as the satellite of ICA 1986 Toronto. During these fifteen years, room acoustics have diversified to the widespread area and dug into details of each area simultaneously. 'Gathering in the hall' and introducing each advances are thus very significant to the researchers in this research field.

The RADS 2004 International Symposium covers all topics; both theoretical and experimental, physical and subjective studies on room acoustics, as well as practical design of auditoria, concert halls, classrooms, public spaces, and any other built environments.

The symposium program consists of 20 invited papers from leading researchers in different countries, about 60 contributed papers, and a panel discussion. One of the most significant features of RADS 2004 symposium is, as the subtitle of the symposium suggests, that many papers on recent design practice are included.

I hope this symposium will become a golden opportunity to exchange ideas and to renew our friendship and an incubator for future progress of research and development of room acoustics.

Hideki Tachibana

General Chairperson, Organizing Committee, RADS2004

Outline of the symposium programme

The programme consists of five 'Forums', a 'Panel Discussion', and a 'Poster Session'. The Forums are lecture style oral session, in which invited papers are presented. However, by naming these Forums, all delegates are invited to participate the discussion more freely and relaxingly to exchange views and ideas than 'Sessions'. In Poster Session, contributed papers are presented by posters. All delegates are invited to attend the poster session in Poster Hour, however, one can find ample time for discussion on posters in Coffee Breaks as well.

Time Table

Note: All 'Forums' (invited oral sessions) are held at 'Reception Hall B' (main session room). The Foyer in front of the 'Reception Hall B' is used for the Poster Session. In Coffee Break, coffee and tea will be served at the Foyer.

Sunday, 11 April 2004

- 13.30 Registration
- 16.00 Panel Discussion: Recent development in room acoustical design practice.
Moderator: R. Metkemeijer (Peutz, Netherlands), Co-organised by K. Oguchi (Nagata Acoustics, Japan)
Panelists: J. P. Vian (CSTB, France), C. Jaffe (Jaffe Holden Acoustics, USA), R. Orłowski (Arup Acoustics, UK), Y. Toyota (Nagata Acoustics US office, Japan), Y. Shimizu (Yamaha, Japan), L. Kirkegaard (Kirkegaard Associates, USA), R. Johnson (Artec Consultants, USA)
- 18.30 Reception/Social Hour: A welcome reception is held at the Foyer of the Reception Hall B. After the reception, a large Japanese style room on the third floor in Westin Awaji Hotel is provided for social hour, where all delegates are invited to continue discussion or social activities.

Monday, 12 April 2004

- 09.00 Forum 1: Computational room acoustics
Moderators: U. P. Svensson, T. Sakuma
Numerical sound field analysis in halls using the finite difference time domain method
Sakamoto, Shinichi Yokota, Takatoshi Tachibana, Hideki
Surface characterization for room acoustic modelling and design
Cox, Trevor J. Antonio, Peter D.
Activities for constructing database on computational methods for environmental acoustics
Otsuru, Toru Sakuma,, Tetsuya Sakamoto, Shinichi
- 10.30 Coffee Break
- 10.45 Forum 2: Virtual reality, auralization & sound field control
Moderators: J. H. Rindel, S. Sakamoto
Sound source representation for auralisation
Rindel, Jens Holger Otondo, Felipe Christensen Claus, Lynge
Advanced techniques for measuring and reproducing spatial sound properties of auditoria
Farina, Angelo Tronchin, Lamberto
Study on an effect of the tacit knowing in the sound image localization
- Experimental study using acoustical VR system
Ise, Shiro
- 12.15 Lunch
- 13.30 Poster Hour (Poster papers are listed later in this program)
Poster session is held at the Foyer of the 'Reception Hall B'. Coffee and tea are served at the session.
- 16.00 Forum 3: Using ISO3382 measures to assess and interpret conditions in concert halls
Moderators: J. S. Bradley, F. Satoh
ISO3382 - how good are the acoustics really?
Barron, Mike

Subjective limens for lateral fraction and late lateral strength

Witew, Ingo Behler, Gottfried Vorlaender, Michael

Supplemental data of dependence of room acoustical parameters on source and receiver positioning

Hidaka, Takayuki

Using ISO3382 measures to evaluate acoustical conditions in concert halls

Bradley, J. S.

Comparison between the MLS and TSP methods for room impulse response measurement under time-varying condition

Satoh, Fumiaki Hirano, Jin Sakamoto, Shinichi Tachibana, Hideki

The relevance of ISO3382 in auditorium design and measurement

Orlowski, Rafal J

- 18.30 Banquet/Social Hour: A welcome reception is held at 'Cielo' ballroom in the Westin Awaji Hotel. After the banquet, a large Japanese style room on the third floor in Westin Awaji Hotel is provided for social hour, where all delegates are invited to continue discussion or social activities.

Tuesday, 13 April 2004

- 09.00 Forum 4: Acoustical design in built environment

Moderators: Y. Lam, K. Ishida

Modelling room acoustics in non-concert hall settings

Lam, Y. W.

Estimation of the area effect of sound absorbent surfaces by using a boundary integral equation

Kawai, Yasuhito

Prediction of Sabine absorption coefficient of modally reactive panels by statistical energy analysis

Sum, K.S. Pan, J.

- 10.30 Coffee Break

- 10.45 Forum 5: Subjective aspects of room acoustics

Moderators: M. Barron, T. Hanyu

Measuring method of interaural cross-correlation as a physical measure for auditory source width

Morimoto, Masayuki

Subjective aspects of room acoustics

Griesinger, David

Spatial impression: Measurement and perception of concert hall acoustics and reproduced sound

Mason, Russell Brookes, Tim Rumsey, Francis

Cognitive modeling of musicians' perception in concert halls

Ueno, Kanako Tachibana, Hideki

Evaluating the effects of room acoustics and sound systems using word intelligibility and subjective ratings of speech transmission quality

Sato, Hiroshi

- 12.45 Closing

List of Poster Presentation

All contributed poster papers are listed below in alphabetical order of the first-named author's surname. Please note that posters are arranged in the same order as listed below in Foyer.

- 1 Time and frequency domain measurements using standard hardware platforms
Ahnert, Wolfgang Feistel, Stefan Richert, Waldemar
- 2 Using dismissed space as auditoria: the case of a former factory and a church
Fabbri, Kristian
- 3 Comparison between opera houses: Italian and Japanese cases
Farina, Angelo Tronchin, Lamberto Tarabusi, Valerio
- 4 Acoustical design of Oita Prefectural Culture Center
Fukuchi, Toshiko Ishiwata, Chiaki
- 5 Acoustical design of Tokyo Bunka Kaikan
Fukuchi, Toshiko Nagata, Minoru
- 6 Architectural acoustic design and characteristics of Kochi Civic Hall
Furukawa, Senichi
- 7 Architectural acoustic design and characteristics of Nagasaki Brick Hall
Furukawa, Senichi
- 8 Relation between listener envelopment and late arriving energy in concert auditoria
Furuya, Hiroshi Fujimoto, Kazutoshi Wakuda, Akiko Nakano, Yusuke
- 9 Relationship between sound image and listener envelopment of sound fields in concert halls
Hanyu, Toshiki Hoshi, Kazuma Sekiguchi, Katsuaki
- 10 Directional microphone system based on spatial deconvolution for analysis of spatial information of sound field
Hanyu, Toshiki Sekiguchi, Katsuaki
- 11 Acoustical design of National Olympics Memorial Youth Center Hall -Improving LE (Lateral Efficiency) by highly scattering ceiling-
Hata, Masato Kawakami, Fukushi
- 12 The effect of pre-processing for improving speech intelligibility in the Sophia University Lecture Hall
Hodoshima, Nao Goto, Takahito Ohata, Noriko Inoue, Tsuyoshi Arai, Takayuki
- 13 Calculation of SPL and intensity fields around audience seats and its application to sound field analysis of large enclosure
Horinouchi, Yoshinari Toyoda, Masahiro
- 14 Loudspeaker arrangement for multichannel sound reproduction taking into consideration listener envelopment
Hoshi, Kazuma Hanyu, Toshiki Sekiguchi, Katsuaki
- 15 On the precision measurement of bulk acoustic properties of absorbing materials in an impedance tube
Ih, Jeong-Guon Lee, Jong-Hwa Kwon, Young-Il
- 16 Two acoustical solutions for multipurpose hall: Active field control and physical control
Ikeda, Masahiro Kishinaga, Shinji Kawakami, Fukushi
- 17 Acoustic design of a multichannel production studio: Example of a small/medium post-production studio in Tokyo
Kai, Chizuru Ikeda, Atsuro Ueoka, Shin-ichi Nakahara, Masataka Omoto, Akira
- 18 Reverberation decay curve and 5 objective parameters of subjective perception
Kim, Yang-Hann Ahn, Sang-Tae
- 19 The Atlanta Symphony Center - A concert hall for our time
Kirkegaard, Lawrence Schuette, Dawn
- 20 Acoustical design of Biwako Hall, center for the performing arts, Shiga
—An opera house based on the dual purpose hall concept—
Kishinaga, Shinji Tanase, Rento Kawakami, Fukushi
- 21 Architectural acoustics graduate education for next-generation acousticians
Kleiner, Mendel Torres, Rendell R. Xiang, Ning
- 22 Effects of speech to noise ratio on listening difficulty in reverberant sound fields
Kobayashi, Masaaki Morimoto, Masayuki Sato, Hiroshi Sato, Hayato
- 23 Round robin tests on measurement and analysis of acoustic indexes
Koga, Takashi Okubo, Hiroyuki
- 24 Modeling diffraction of an edge between surfaces with different materials
Lokki, Tapio Pulkki, Ville

- 25 *Diffraction sound field from an orchestra pit*
Løvstad, Anders Svensson, U. Peter
- 26 Evaluating mean values of acoustical indexes as a design standard
Miyazaki, Hideo Hata, Masato Kishinaga, Shinji
- 27 A method for analysis of sound fields including seat dip effect
Murakami, Ken Takahashi, Daiji
- 28 Scattering effect of a mixing console in a production studio
Nakahara, Masataka Omoto, Akira Fujiwara, Kyoji
- 29 Theoretical analysis of an acoustic gain by a stage riser with periodic ribs
Nakanishi, Shinsuke Sakagami, Kimihiro Morimoto, Masayuki
- 30 Visual counterparts to spatial impression in auditorium acoustics
Nguyen, Andy Cabrera, Densil
- 31 The young architect's guide to room acoustics
Nijs, Lau Vries, Diemer de Petri, Daan
- 32 Perforated panels - Porous material broad-band absorption system with screen strips
Oguchi, Keiji Fujiwara, Kyoji
- 33 Acoustical design of Tokushima Bunri University Murasaki Hall
Oguchi, Keiji Komoda, Motoo Nakamura, Hideo
- 34 Acoustical design of Toyota City Concert Hall and Noh Theatre
Oguchi, Keiji Nagata, Minoru Naniwa, Katsuji
- 35 Basic investigations on preconditioning for large-scale sound field analysis by finite element method with iterative methods
Okamoto, Noriko Otsuru, Toru Tomiku, Reiji Fukuda, Midori
- 36 Acoustical design of AUBADE HALL
Ono, Akira Ino, Makoto Ishiwata, Chiaki Komoda, Motoo
- 37 Acoustical design of Yokosuka Arts Theatre
Ono, Akira Nakamura, Hideo Ishiwata, Chiaki
- 38 Detailed analysis of the effect of vibration of a microperforated panel on its sound absorption characteristics
Sakagami, Kimihiro Morimoto, Masayuki Yairi, Motoki
- 39 Numerical analysis of the effects of room shapes and diffusion treatment in halls
Sakamoto, Shinichi Yokota, Takatoshi Tachibana, Hideki
- 40 Comparison between scattering coefficients determined by specimen rotation and by directivity correlation
Sakuma, Tetsuya Kosaka, Yoshiyuki
- 41 Preferred scattering level for a Javanese Gamelan Performance Hall
Sarwono, J. Lam, Y.W.
- 42 Acoustical design of the concert hall in Niigata Performing Arts Center -New acoustical design criteria for surrounding concert hall-
Shimizu, Yasushi Honji, Yoshikazu Kawakami, Fukushi
- 43 AFC and digital audio network in the acoustical renovation of Yamaha Hall
Sonoda, Shinya Ikeda, Masahiro Watanabe, Takayuki Kishinaga, Shinji
- 44 Numerical aspects of edge diffraction impulse responses
Svensson, U. Peter
- 45 Auditory integration characteristics based on critical time delay of echo perception for improvement of indices for room acoustics
Tahara, Yasuhiko Sato, Hiroshi
- 46 Acoustical design method for a multi-purpose hall with a pipe organ -An example of LIC Habikino "Hall M" -
Takahashi, K. Kobayashi, S. Kawakami, F.
- 47 The relationship between sound field characteristics and difference tone perception of organ sound -A study from the acoustical design viewpoint-
Takahashi, Kengo Kishinaga, Shinji Tsuru, Hiroyuki
- 48 A fundamental study on the extraction of head-related transfer functions from binaural room transfer functions
Takane, Shouichi Sone, Toshio
- 49 Three dimensional acoustic wave motion analysis of the wide area by a boundary integral equation method using a response function adapted boundary conditions
Tanigawa, Masaki
- 50 Visualization of 3-dimensional sound fields by numerical solutions and measured data
Tokita, Yasuhiro Yamasaki, Yoshio

- 51 Comparison between diffuseness of sound fields in reverberation rooms with and without absorption material by finite element method
Tomiku,Reiji Otsuru,Toru Takahashi,Yasuo Azuma,Daisuke
- 52 Evaluating physical and aural accuracy in computed early room impulse responses
Torres,Rendell R. Kleiner,Mendel Xiang,Ning
- 53 Acoustical design of Performing Arts Center at Bard College
Toyota,Yasuhisa Hakozaiki,Ayako Nagata,Minoru
- 54 Acoustical design of Walt Disney Concert Hall
Toyota,Yasuhisa Oguchi,Keiji Nagata,Minoru
- 55 Acoustical design of diffusing panels in the Theatre Vittorio Emanuele, Messina, Italy
Tronchin,Lamberto
- 56 Acoustical enhancements in the restoration of the Teatro Comunale in Treviso, Italy
Tronchin,Lamberto
- 57 The acoustical design of the Auditorium of Firenzuola (Florence), Italy
Tronchin,Lamberto Farolfi,Giovanni Macuzzi,Aleksander Tarabusi,Valerio
- 58 Investigations on the measurement method of room impulse responses
Uchinoura,Yuki Otsuru,Toru Tomiku,Reiji Yamamoto,Midori
- 59 Acoustic design of the National Grand Theatre of China, an attempt to get the rich sound of a modern opera in a classical horse shoe theatre
Vian, Jean-Paul
- 60 CARMEN: A new acoustic enhancement system based on the virtual wall principle
Vian, Jean-Paul
- 61 Analyzing the influence of design modification on the room response by acoustical imaging
Vries,Diemer de Kuster,Martin Hulsebos,Edo
- 62 Interactions of model detail level and scattering coefficients in room acoustic computer simulation
Wang,Lily M. Rathsam,Jonathan Ryherd,Steven R.
- 63 Acoustical design of the National Theater Okinawa
Yamakawa,Takashi Kawakami,Fukushi Tokuriki,Yukiya Masuda,Kiyoshi Ishii,Kiyoteru

Banquet , Reception and Social Hour

Welcome Reception is held on Sunday, 11 April, 18.30, at the Foyer of the ‘Reception Hall B’ (main forum venue), for social gathering of all delegates. Snacks and refreshment will be served for free.

Banquet is held on Monday, 12 April 2004, 18.30, at ‘Cielo’ ballroom in the Westin Awaji Hotel. Delegates who have not paid the banquet fee will be requested to pay JPY 8,500 at the registration desk to attend the banquet.

Social Hour: In the evenings after the reception and banquet, there is a large Japanese style room on the third floor in the Westin Awaji Hotel open to all delegates for ‘further’ social activities in a relaxed atmosphere on tatami.

Note: The time table may be amended if the session is delayed.

For Presenters

Oral presenters are requested to report their moderator prior to their scheduled forum. It is strongly advised to check the projector arrangement. For poster presenters, please contact Poster Presentation desk prior to the poster session.

Accompanying persons’ programme:

Tea-ceremony room experience and flower gardens

A 1/2-day programme is held for accompanying persons in the afternoon on Monday 12th of April. All the accompanying persons are invited to participate this programme. The tour includes a visit to the excellent tea-ceremony room in the Awaji Yumebutai Conference Centre, where the tour participants are invited for a tea-ceremony. After having the tea-ceremony experience, taking a coach to *Hana-sajiki* flower gardens and the greenhouse of the Conference Centre. Assemble at 13.30 at the registration desk.

Useful information

Registration desk

Registration desk is open as follows.

Sunday, 11th Apr: 13.30-18.30 / Monday, 12th Apr: 09.00-18.00 / Tuesday, 13th Apr: 19.00-22.00

Poster presentation desk

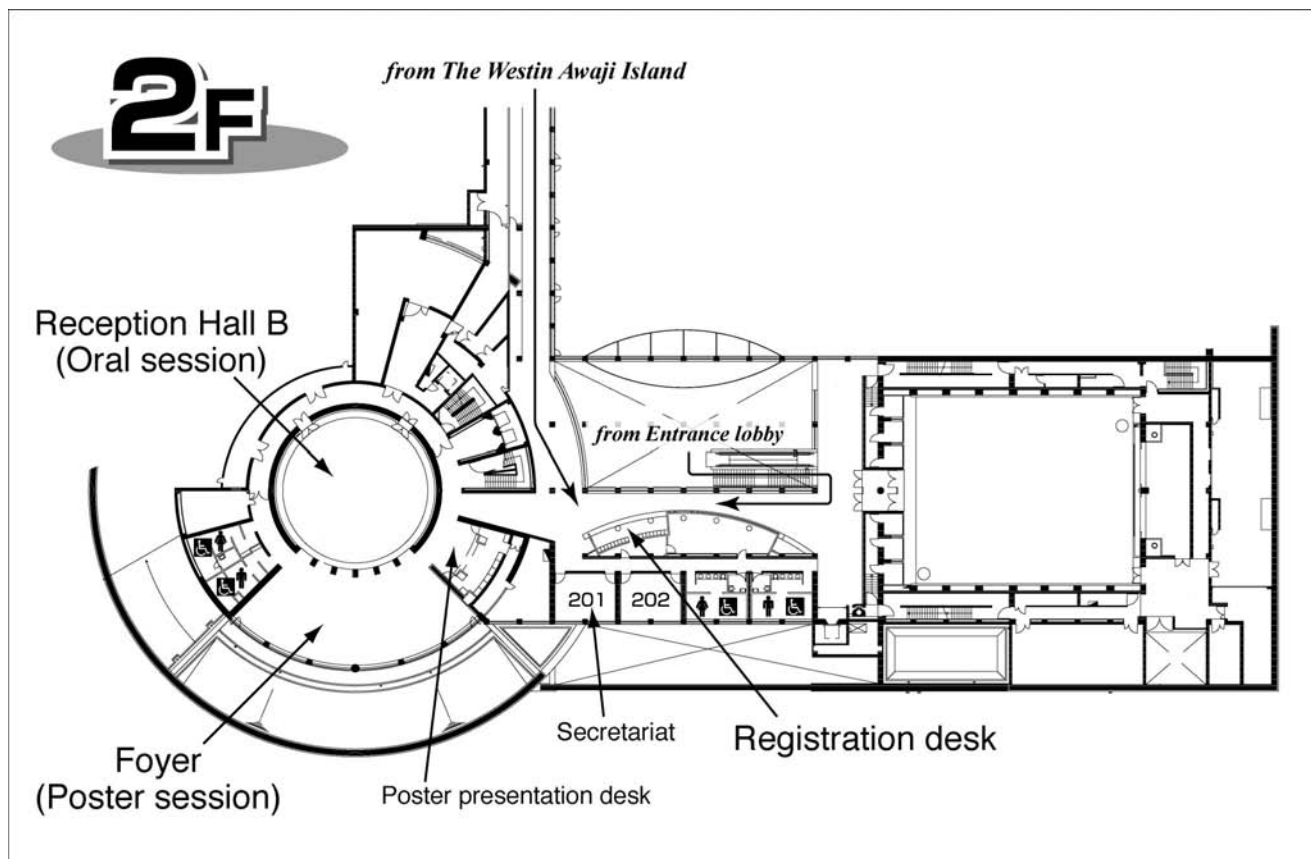
Poster presentation desk is at the entrance of the Foyer of the 'Reception Hall B' (poster session venue), and open 12.00-13.30, Monday, 12th April. Poster presenters are advised to contact the desk to receive stationery for poster arrangement.

Photocopying and PC service

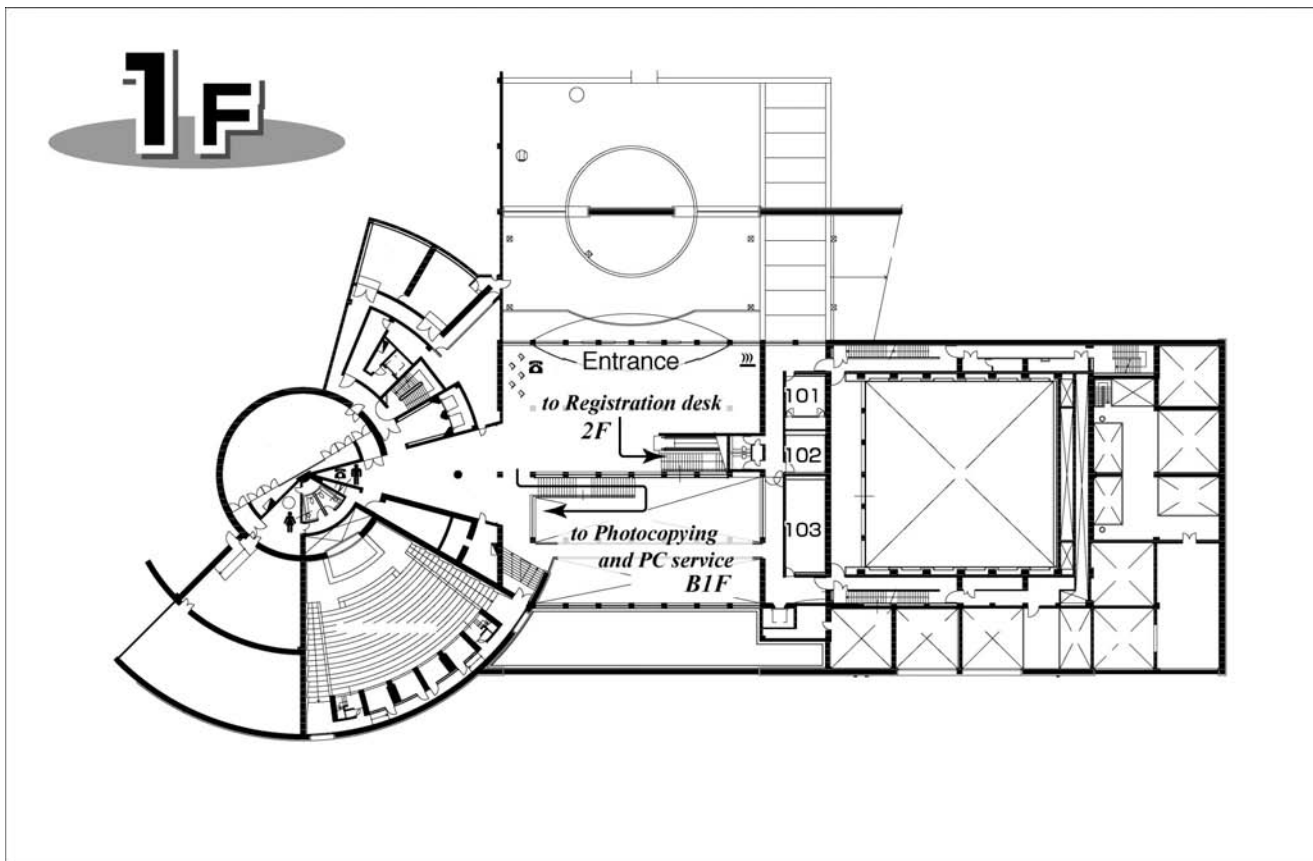
Photocopier and PC service are located on B1 floor (see the plan below). The cost for photocopying and printing (A4 size) is JPY 10 per copy. A paper can be printed out from the CDROM proceedings. Free internet access is also available. If you need technical assistance, please contact the Registration desk.

Floor plan and information

The second floor (2F) is the main floor of the conference venue. The main session is in the Reception Hall B, where all 'Forums' (invited oral sessions) are held. The Foyer in front of the Reception Hall B is used for Poster Session, and coffee/tea is served here at Coffee Breaks. Welcome Reception is also held here. Registration desk, Poster Presentation desk and Secretariat office are on this floor. The conference venue is connected to the Westin Awaji Island Hotel, the official hotel of RADS2004, on this floor.



The first floor (1F: ground floor) is the entrance level.



In the basement (B1F: underground level), there is photocopiers and PC service (JPY 10 per copy) where delegates can photocopy or print out documents (JPY 10 per copy). Free internet access is available.

