



## SCIENTIFIC SECRETARIAT

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## SYMPOSIUM VENUE

University of Hamburg, Department of Chemistry  
Martin-Luther-King-Platz 6, 20146 Hamburg, Germany

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## WELCOME

The International Carbohydrate Organization (ICO) and the Local Organizing Committee cordially welcome all delegates and accompanying persons to Hamburg for the 20<sup>th</sup> International Carbohydrate Symposium to be held at the University of Hamburg in the Department of Chemistry.

*Joachim Thiem  
Symposium Chairman*

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## INTERNATIONAL CARBOHYDRATE ORGANIZATION (ICO)

President	James N. BeMiller <i>United States</i>
Past President	Benito Casu <i>Italy</i>
Secretary	Berit Smestad Paulsen <i>Norway</i>
Symposium Chairman	Joachim Thiem <i>Germany</i>

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Thomas Peters ..... <i>Lübeck</i>	

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Hagen Bretting ..... <i>Hamburg</i>	Hans Paulsen ..... <i>Hamburg</i>
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Klaus-Peter Wittern ..... <i>Hamburg</i>	



## NATIONAL REPRESENTATIVES OF ICO

<i>Argentina</i>	Oscar Varela	<i>Japan</i>	Tomoya Ogawa
<i>Australia</i>	Robert V. Stick	<i>New Zealand</i>	Richard H. Furneaux
<i>Austria</i>	Paul Kosma	<i>Norway</i>	Berit Smestad Paulsen
<i>Canada</i>	Harold J. Jennings	<i>Poland</i>	Aleksander Zamojski
<i>Cuba</i>	Vicente Verez-Bencomo	<i>Portugal</i>	Amelia Pilar Rauter
<i>Denmark</i>	Inge Lundt	<i>Russia</i>	Vladimir N. Shibaev
<i>Finland</i>	Tapani Vuorinen	<i>Slovakia</i>	Jan Hirsch
<i>France</i>	Pierre Sinaÿ	<i>South Africa</i>	Harambolis Parolis
<i>Germany</i>	Joachim Thiem	<i>Spain</i>	Manuel Martin-Lomas
<i>Hungary</i>	András Lipták	<i>Sweden</i>	Bertil Samuelsson
<i>India</i>	Mukund K. Gurjar	<i>Switzerland</i>	Beat Ernst
<i>Ireland</i>	Angela Savage	<i>The Netherlands</i>	Johannes F.G. Vliegenthart
<i>Israel</i>	Uri Zehavi	<i>United Kingdom</i>	John S. Brimacombe
<i>Italy</i>	Benito Casu	<i>United States</i>	James N. BeMiller

## ROY L. WHISTLER AWARD

For the recognition of scientist “distinguished with contribution of excellence and with promise of continuing productivity in carbohydrate research” the ICO in 1984 established an US \$ 10.000 award in honor of Professor Roy L. Whistler.

### **Previous Whistler Award winners were:**

1984	Tomoya Ogawa	Tokyo, Japan
1986	Klaus Bock	Copenhagen, Denmark
1988	David R. Bundle	Ottawa, Ontario, Canada
1990	Johannis Kamerling	Utrecht, The Netherlands
1992	Andrea Vasella	Zürich, Switzerland
1994	Chi-Huey Wong	San Diego, CA, USA
1996	Constant van Boeckel and Maurice Petitou	Oss, The Netherlands and Toulouse, France
1998	Ole Hindsgaul	Edmonton, Alberta, Canada

**The award for 2000 will be presented at the 20th ICS to**

**PROFESSOR ANNE DELL,  
Imperial College, London, UK**



## PREVIOUS INTERNATIONAL CARBOHYDRATE SYMPOSIA AND CHAIRMEN

I	1960	Gif-sur-Yvette, France	Jean E. Courtois
II	1962	Birmingham, UK	Maurice Stacey
III	1964	Münster, Germany	Fritz Micheel
IV	1967	Kingston, Ontario, Canada	James K.N. Jones
V	1970	Paris, France	Jean E. Courtois
VI	1972	Madison, Wisconsin, USA	Roy L. Whistler
VII	1974	Bratislava, Slovakia	Stefan Bauer
VIII	1976	Kyoto, Japan	Kinoshin Onodera
IX	1978	London, UK	William G. Overend
X	1980	Sidney, Australia	Stephen J. Angyal
XI	1982	Vancouver, British Columbia, Canada	Guy S. Dutton
XII	1984	Utrecht, The Netherlands	Johannes F.G. Vliegthart
XIII	1986	Ithaca, New York, USA	James N. BeMiller
XIV	1988	Stockholm, Sweden	Per J. Garegg
XV	1990	Yokohama, Japan	Akira Misaki
XVI	1992	Paris, France	Pierre Sinaÿ
XVII	1994	Ottawa, Ontario, Canada	Harold J. Jennings
XVIII	1996	Milan, Italy	Benito Casu
XIX	1998	San Diego, California, USA	David A. Brant
XX	2000	Hamburg, Germany	Joachim Thiem

## ICS 2002 CAIRNS, AUSTRALIA

### **XXI International Carbohydrate Symposium**

Cairns, Queensland, Australia

Juli 7 – 12, 2002

The Secretariat:

XXI International Carbohydrate Symposium

Congress West

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PROGRAM OVERVIEWSUNDAY AUG. 27

<b>Afternoon</b>	16:00 - 19:00	Registration	<i>Dept. of Chemistry</i>
<b>Evening</b>	19:00 - 21:00	Symposium Mixer	

MONDAY AUG. 28

<b>Morning</b>	8:30 - 9:00	Opening Ceremony	<i>Auditorium Maximum</i>
	9:00 - 9:45	Whistler Lecture	
	9:50 - 10:35	Plenary Lecture Coffee Break	
	11:00 - 11:45	Plenary Lecture Lunch	
<b>Afternoon</b>	14:00 - 14:30	Invited Lectures	<i>Dept. of Chemistry</i>
	14:30 - 15:30	Oral Communications Coffee Break	
	16:00 - 17:00	Oral Communications	
<b>Evening</b>	18:00 - 19:30	Mayoral Reception	<i>City Hall</i>

TUESDAY AUG. 29

<b>Morning</b>	9:00 - 9:45	Plenary Lecture	<i>Dept. of Chemistry</i>
	9:45 - 10:15	Invited Lectures	
	10:15 - 10:55	Oral Communications Coffee Break	
	11:30 - 12:50	Oral Communications Lunch	
	<b>Afternoon</b>	14:00 - 16:15	
	15:30		
	16:15 - 16:45	Invited Lectures	
	16:45 - 17:30	Plenary Lecture	
<b>Evening</b>	20:00 - 21:00	Organ Concert	<i>St. Katharinen</i>

WEDNESDAY AUG. 30

<b>Morning</b>	9:00 - 9:45	Plenary Lecture	<i>Dept. of Chemistry</i>
	9:45 - 10:25	Oral Communications Coffee Break	
	11:00 - 12:20	Oral Communications Lunch	
<b>Afternoon</b>	13:30 - 18:30	City and Harbour Tour	<i>Excursions</i>
	13:30 - 21:00	Lübeck	
	13:30 - 17:30	Boat Trip	
<b>Evening</b>			

THURSDAY AUG. 31

<b>Morning</b>	9:00 - 9:45	Plenary Lecture	<i>Dept. of Chemistry</i>
	9:45 - 10:15	Invited Lectures	
	10:15 - 10:35	Oral Communications Coffee Break	
	11:00 - 12:20	Oral Communications Lunch	



<b>Afternoon</b>	14:00 - 16:15	Poster Session II	<i>Dept. of Chemistry</i>
	15:30	Coffee	
	16:15 - 16:45	Invited Lectures	
	16:45 - 17:30	Plenary Lecture	
<b>Evening</b>	19:30 - 23:00	Symposium Dinner	<i>Hamburger Börse</i>
<b>FRIDAY SEP. 1</b>			
<b>Morning</b>	9:00 - 9:45	Plenary Lecture	<i>Dept. of Chemistry</i>
	9:45 - 10:15	Invited Lectures	
	10:15 - 10:35	Oral Communications	
		Coffee Break	
	11:00 - 12:20	Oral Communications	
	12:20 - 13:05	Plenary Lecture	
	13:05 - 13:20	Closing Ceremony	
	Lunch		

## GENERAL INFORMATION

The 20<sup>th</sup> International Carbohydrate Symposium will take place from Sunday afternoon, August 27, to Friday afternoon, September 1, 2000 at the University of Hamburg close to the centre of the city.

### **Registration and Information Desk**

The 20<sup>th</sup> ICS Registration and Information Desk is located in front of the lecture halls at the Department of Chemistry and staffed by the Scientific Secretariat and the Symposium Service SCC. All questions concerning scientific matters as well as organisational and financial questions will be addressed here.

Delegates and accompanying persons are requested to register here and collect the conference material and their prepaid tours and dinner tickets.

### **Registration at the Symposium**

Sunday	Aug. 27.	16:00 - 19:00 hrs
Monday	Aug. 28.	7:30 - 18:00 hrs
Tuesday	Aug. 29.	8:30 - 18:00 hrs
Wednesday	Aug. 30.	8:30 - 14:00 hrs
Thursday	Aug. 31.	8:30 - 18:00 hrs
Friday	Sept. 01.	8:30 - 14:00 hrs

### **Badges**

Delegates and accompanying persons are asked to wear their badges at all times as a courtesy to other participants and the symposium staff and for admittance to the lecture halls and functions and to obtain refreshments during the breaks. Further, the badges identify participants of the 20th ICS for free use of public transport services, free admission to the Symposium Mixer on Sunday, the Reception of the Senate on Monday, and the Organ Concert at St. Katharinen on Tuesday.



### **Social Room for Accompanying Persons**

Across from the Registration Desk and next to the PC Terminal Room a separate room is reserved for Accompanying Persons.

This room will provide useful additional informations and practical hints, and is ment to supported a relaxed atmosphere for personal exchange. There will be always someone to be addressed for advise and to solve problems. You can have coffee, tea or cold drinks, or if needed an aspirin.

During the week the room will host the exhibition "Science in Art – Art in Science" displaying pictures painted by Nature.

### **Local Transportation Services**

For registered participations and accompanying persons the name badge serves as a ticket for all local transport services (U-Bahn, S-Bahn, Bus) for the duration of the Symposium.

### **Meals**

Lunch, included in the registration fee, will be provided from Aug. 28 to Sept. 1 from about 12:30 - 14:00 at the Mensa, situated in short walking distance to the lecture halls. The luncheon vouchers cover meals and drinks up to a value of DM 8.00. Selections exceeding this amount will have to be paid individually. Additional luncheon vouchers can be purchased at the Registration Desk. There will be no refund on vouchers.

Generally in German hotels breakfast is included unless otherwise stated. As an alternative to the free lunch in the Mensa, lunch can be purchased in many smaller restaurants close to the Symposium Venue. Dinners are up to the individual delegate, and Hamburg offers a great variety of restaurants with regard to ethnic food and budget requirements. A list of recommended restaurants will be provided.

### **PC Terminal Room**

About opposite from the Registration Desk delegates will find the PC Terminal Room providing Internet access and CD-ROM drives.

### **Banking and Payment**

In close proximity to the Symposium Venue almost all German banks are open from about 9:00 - 17:00 hrs. All standard currencies will be exchanged, and most of them operate automatic teller machines. Exchange rate 1 € = 1.95583 DM = US \$ 0.93

Major credit cards are generally accepted throughout, however, in Germany paying in cash (in Deutsche Mark = DM) is standard habit, in particular for smaller amounts.

### **Insurance**

Participants are responsible for arranging their own health and accident insurance. The Organizing Committee will not be held liable for accidents, theft, or property damage.

### **Electricity**

German electric current is 220 V, 50 Hz. Wall-sockets are provided for two-pin plugs, and participants may have to equip themselves with appropriate adapters.

### **Exhibition**

During the conference, a trade exhibition of books, scientific and technical equipment as well as computer software related to the topics of the symposium will be held in front of the lecture halls.



### Medical Help

A list of doctors on duty during the day is available at the Registration and in the Social Room for Accompanying Persons. Delegate requiring medical help at other times should contact their hotel reception.

## REGULAR PARTICIPANTS' SOCIAL PROGRAM

Sunday	Aug. 27	Symposium Mixer	(SYMPOSIUM VENUE) – FREE
Monday	Aug. 28	Reception	(RATHAUS) – FREE
Tuesday	Aug. 29	Organ Concert	(ST. KATHARINEN) – FREE
Wednesday	Aug. 30	Afternoon Excursions	(3 ALTERNATIVES)
Thursday	Aug. 31	Symposium Dinner	(BÖRSE)

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## ACCOMPANYING PERSONS' SOCIAL PROGRAM

Sunday	Aug. 27	Symposium Mixer	(SYMPOSIUM VENUE) – FREE
Monday	Aug. 28	Welcome	(SOCIAL ROOM) – FREE
		Hamburg City Tour	FREE
		Reception	(RATHAUS) – FREE
Tuesday	Aug. 29	Excursion to Schwerin	
		Organ Concert	(ST. KATHARINEN) – FREE
Wednesday	Aug. 30	Afternoon Excursions	(3 ALTERNATIVES)
Thursday	Aug. 31	Alster Canal Cruise	
		Symposium Dinner	(BÖRSE)

### INCLUDED IN THE REGISTRATION FEES:

*Please wear your name-badge for admittance.*

#### **Symposium Mixer**

*Sunday August 27 from 19:00 - 21:00 hrs*

All registered participants and accompanying persons are invited to an informal food and drink reception to be held at the Department of Chemistry in front of the lecture halls.

#### **Welcome for Accompanying Persons in the Social Room**

*Monday August 28 from 10:00 - 12:00 hrs*

After the Opening Ceremony in the Auditorium Maximum (8:30 - ca. 9:00 hrs) the accompanying persons have the opportunity to return together to the chemistry building. In the Social Room you can enjoy the exhibition "Science in Art – Art in Science". A short survey of the Hamburg City Tour will be given.

#### **Sightseeing Tour of Hamburg for Accompanying Persons**

*Monday August 28 from 14:00 - 17:00 hrs*

A guided city tour will provide lasting impressions of the Hanseatic City of Hamburg and its manifold faces.

#### **Reception by the Mayor**

*Monday August 28 from 18:00 - 19:00 hrs*

A brief Welcome by Representatives of the Federal State of Hamburg will be held in the City Hall.





**Organ Concert at St. Katharinen**

*Tuesday August 29: 20:00 - 21:00 hrs*

Organist and cantor *Andreas Fischer* will give this concert at St. Katharinen (built in 1250).

Address: Katharinenkirchhof 1, 20457 Hamburg

**AVAILABLE AT EXTRA COSTS:**

*If you did not yet book for the following tours or events and would like to do so, please inquire with SCC at the Registration Desk and find out whether space is still available.*

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All tours depart in front of the Chemistry-Zoology Science Center.

**Sightseeing City Tour of Hamburg**

*Monday Aug. 28, 2000 from 14:00 - 16:00 hrs*

A three hour City Tour gives the participants a lasting impression of the Hanseatic City of Hamburg and its manifold faces. The tour encompasses the main churches in Hamburg (St. Nikolai, St. Jakobi and St. Petri), the "Reeperbahn", the famous red-light district, as well as the TV Tower and the huge inner city park "Planten un Blomen". A panoramic cruise around the inner Alster Lake offers an idyllic view of the beautiful villas and mansion houses as well as of the impressive skyline of Hamburg. The guests will have the chance to have a closer look inside the St. Michael's church, the landmark of Hamburg and the "Krameramtsstuben" which was until 1783 home to the widows of rich Hanseatic citizens. Participants may also stretch their legs at one of the many beautiful recreation areas on the Alster Lake.

Including: deluxe motorcoach; English-speaking guide; information material.

Minimum: 35 participants; free of charge for Accompanying Persons; fee p.p. for Regular Participants Euro 22.50

**Excursion to Schwerin**

*Tuesday, Aug. 30, 2000 from 9:00 - 19:00 hrs:*

After a picturesque ride through the Mecklenburg countryside, the guests arrive at the former East German town of Schwerin, the second largest town in the region and capital of the new Federal State of Mecklenburg – Vorpommern.

After leaving the coaches at the theatre of Schwerin, a short walk will lead to the huge castle of Schwerin, located on an island at the edge of the charming Lake Schwerin. Surrounded by fifteen turrets and a beautiful park, the Neo-Renaissance castle is a unique mixture of historical styles, due to almost a century of fires, renovations and additions. The castle with a surrounding moat is a copy of the French Chateau Chambord. It currently serves as the official residence of the Mecklenburg – Vorpommern Parliament.

After visiting the castle and a stroll back into the city, lunch will be served in a wine restaurant. On the way to the restaurant the Neo-Renaissance State Theatre is passed and a look at the "Staatliche Galerie" with its collection of paintings by nineteenth-century German artists is offered.

After lunch, the half timbered houses of another era and the old Gothic Cathedral, built in the 13<sup>th</sup> century, with its 320 -foot tower will be viewed. The Cathedral is the oldest building in Schwerin and its bronze baptismal font dates from the 14<sup>th</sup> century.

After transfer to Güstrow (approx. 1 hour), the "Gertrudenskapelle" with grave and sculptures of the famous German artist Barlach, as well as his former atelier "Haus am See" with exhibits of Ernst Barlach and Käthe Kollwitz can be visited.

Including: Transfer in a deluxe motorcoach; English-speaking guides in Schwerin and Güstrow; all entrance fees; lunch; information material.

Minimum: 35 participants; fee p.p. Euro 69.00



### Wednesday Afternoon Excursions

On Wednesday afternoon no scientific sessions are scheduled. Symposium Delegates and Accompanying Persons are invited to select and book one of the three alternative tours described.

#### 1) City and Harbor Tour Including Old Warehouse District

*Wednesday, Aug. 31, 2000 from 13:30 - 18:30 hrs*

A three hour City Tour gives the guests a remaining impression of the Hanseatic City of Hamburg and its manifold faces.

Participants will take a closer look at the main churches in Hamburg (St. Nikolai, St. Jakobi and St. Petri), the famous red-light district the "Reeperbahn" as well as the TV Tower and the huge inner city park, "Planten un Blomen".

A panoramic cruise around the inner city Alster Lake offers a stunning view of the beautiful villas and mansion houses as well as of the impressive skyline of Hamburg. The guests will have the chance to explore St. Michael's church, the landmark of Hamburg and the Krameramtsstuben, until 1783 home of the widows of rich Hanseatic citizens. Another possibility for the guests is to stretch their legs at a particularly picturesque spot on the Alster Lake.

Following the City Tour with visits to the most interesting points of Hamburg the guests will embark on a special charter boat for a harbor cruise.

Including: Transfer in a deluxe motorcoach; English-speaking guide; cruise in a comfortable launch; information material.

Minimum: 35 participants; fee p.p. Euro 44.00

#### 2) Excursion to Lübeck

*Wednesday, Aug. 31, 2000 from 13:30 - 21:00 hrs*

The beautiful town of Lübeck has preserved its original flair and gives the visitors a perfect impression of an old Hanseatic town with narrow cobblestone streets, brick churches, scenic backyards etc. Lübeck is protected as an UNESCO World Heritage City and therefore large parts of the city remain closed for cars and busses. Most of the Lübeck tour must be done by walking.

After the guided transfer, the English speaking hostess will provide some initial information and impression of the destination.

One of the most popular "institutions" in Lübeck is "Niederegger", the famous Marzipan Factory, home of the marzipan, the traditional sweet from Lübeck. After arrival the guests will have coffee and a piece of marzipan cake there. In the evening dinner will be served at the "Schiffergesellschaft". Originally in 1535 built as a meeting house for the shipmasters, it shows unique interior and treasures from the world of shipping, and is now in use as a restaurant with excellent service and food.

Including: Transfer in a deluxe motorcoach; English-speaking guide in Lübeck, coffee and pastry at "Niederegger"; dinner at "Schiffergesellschaft"; information material.

Minimum: 35 participants; fee p.p. Euro 57.50

#### 3) Boat Trip on River Elbe

*Wednesday, Aug. 31, 2000 from 13:30 - 17:30 hrs*

This tour includes the transfer to the "Landungsbrücken" where the guests embark on a typical Hamburg boat which will be cruising in the Elbe for two hours. Meanwhile the guide will explain the harbor, the warehouse city and the picturesque former fisher village Blankenese.



After arriving in Wedel the guests will walk to the “Schulauer Fährhaus” to enjoy coffee and pastry and the beautiful view of the passing ships. The transfer back to the city center will be by bus (approx. 1 hr).

Including: Transfers in a deluxe motorcoach; English-speaking guide; boat rental, coffee and pastry in the Schulauer Fährhaus; information material.

Minimum: 35 participants; fee p.p. Euro 47.50

### **Alster Canal Cruise**

*Thursday Aug. 31, 2000 from 10:00 - 13:00 hrs*

The boat trip will be on the Inner and Outer Alster Lake and continue along the canals of the Alster Lake. It will provide an unforgettable impression: stately villas, carefully tended parks, modern flats, garden allotments and natural vegetation of many lakeside areas present a picture of constant variety.

Start: Landing stages “Alsteranleger Jungfernstieg”, (city center, a short walk from the Town Hall).

Including: coach trip; English-speaking guide; cruise in special launch.

Minimum: 35 participants, fee p.p. Euro 37.50

### **Symposium Dinner at the “Hamburger Börse”**

*Thursday Aug. 31, 2000 from 19:30 hrs*

The Symposium Dinner will take place in the Hamburger Börse (Hamburg Stock Exchange) in a traditional Hanseatic atmosphere. Founded in 1558 the venerable Hamburger Börse is the oldest in Germany. The present neoclassicistic building of 1841 at Adolphsplatz is home of the Chamber of Commerce and directly joined to the rear of the Rathaus (City Hall) by two connecting wings.

Fee p.p. Euro 80.00

### **Post-Symposium Excursions**

#### **1) Weekend in Berlin**

*Friday to Sunday, Sept. 1 - 3, 2000*

##### Friday

13:00 Start by deluxe motor coach to Berlin. Upon your arrival your stay in Berlin starts with an introduction to the new capital from past to present. The tour will give you an intensive historical overview of Berlin from medieval times to its present development as the capital of Germany. It covers all the renowned sights of the city: the “Brandenburg Tor”, the boulevard “Kurfürstendamm”, the avenue “Unter den Linden” with Humboldt University and the State Opera House, as well as remnants of the Berlin Wall. Check-in at hotel “Kronprinz”, a privately owned and managed hotel in a completely restored turn-of-the century townhouse, built in 1894 and located in the city center of Berlin. Dinner at a typical Berlin pub, buffet and drinks included.

##### Saturday

Morning is reserved for the second, more detailed part of your Berlin tour. You will be taken to Berlin’s most famous museum, the “Pergamon Museum”, followed by a walking tour focussing on the fascinating district “Scheunenviertel”. This district remained from the 18th century and is known as the Jewish quarter with an impressive synagogue. The walk will end at the “Hackesche Höfe”, a unique architectural ensemble of eight courtyards, recently beautifully restored, and typical for Berlin at the turn of century. At noon we will leave Berlin for Potsdam, the second residential city of the Hohenzollern dynasty. It is famous for having the most palaces worldwide. The “youngest” palace is the one we will visit first: “Schloss Cecilienhof”, built for the last Crown Prince and his wife Cecilie. It is a site of great importance for the history of postwar Germany: the final Allied Conference at the end of World War II took place here in July/August 1945. After lunch the tour will continue with a visit to the most famous palace “Sanssouci” of Frederick the Great. Dinner will be served in a Berlin Restaurant.



Sunday

After breakfast return travel to Hamburg; arrival in Hamburg at noon.

Including: deluxe motorcoach; English-speaking guide; information material; breakfast (Sept. 2/3), lunch (Sept. 2) and dinner (Sept. 1/2); all entrance fees; Minimum: 30 participants; fee p.p. Euro 468.00

**2) One Day trip to Berlin**

*Saturday Sept. 2, 2000 from 9:00 - 22:00 hrs*

This day trip will give an intensive historical overview of Berlin from medieval times to its present development as the capital of Germany. It covers all the renowned sights of the city: the “Brandenburger Tor”, the boulevard “Kurfürstendamm”, the avenue “Unter den Linden” with Humboldt University and State Opera House. Lunch will be served in a typical Berlin restaurant with regional specialities, two drinks and coffee included. A visit to the “Reichstag”, the German Parliament, with its new glass dome and Berlin’s most famous museum the “Pergamon Museum”, are scheduled for this afternoon. Dinner will be served during a stopover in Schwerin in a historic restaurant from the 18<sup>th</sup> century, two drinks and coffee included. The group will be accompanied by a Berlin guide for the whole tour.

Including: deluxe motorcoach; English-speaking guide; lunch and dinner; all entrance fees; information material.

Minimum: 30 participants; fee p.p. Euro 133.00

**3) Excursion to Lüneburg Heath and EXPO 2000 in Hannover**

*Friday to Sunday, Sept. 1 - 3, 2000*

Friday:

13:00 Start by deluxe motor coach to Hannover with a stop for lunch in Lüneburg, a wonderful old town in the middle of the heath; two drinks and coffee included. In the late afternoon arrival in Sarstedt, a small town very close to the EXPO 2000. Stay at a wonderful restored estate in an enchanting countryside. Traditional buffet including drinks.

Saturday:

After breakfast transportation to the EXPO near Hannover. “Humankind, Nature, Technology – A Whole World” is the theme of the Expo 2000. It is based on the AGENDA 21, the environmental policy action program for the 21<sup>st</sup> century which was signed by 179 countries at the conference of the United Nations in Rio de Janeiro in 1992. The Topics of the AGENDA 21 are i.e.: free trade, the reduction of greenhouse gasses, sustainable agriculture and forestry and the economic development worldwide, with a view to linking economic activity with social responsibility.

Sunday:

After breakfast return travel to Hamburg. Arrival in Hamburg approx. 12:00 hrs.

Including: deluxe motorcoach; English-speaking guide; two overnight stays with breakfast; one lunch; one dinner; entrance fee; information material. Minimum: 30 participants; fee p.p. Euro 414.50

**4) One Day Trip to EXPO 2000 in Hannover**

*Saturday, Sept. 2, 2000 from 9:00 - 20:00 hrs*

Activities see: Weekend trip to EXPO 2000 Hannover, Saturday program

Including: deluxe motor coach; English-speaking guide; entrance fee; information material.

Minimum: 30 participants; fee p.p. Euro 82.50



## SCIENTIFIC PROGRAM

The Scientific program will include presentations and discussions of all activities on glycoscience and is traditionally structured into four sessions:

- A. Structure and Analysis:** primary, secondary and higher order structure; conformational analysis; spectroscopic and instrumental analysis.
- B. Synthesis:** chemical and enzymatic synthetic methods; synthesis of carbohydrates, nucleosides, nucleotides, antibiotics involving carbohydrate moieties, carbohydrates as chiral precursors.
- C. Biochemistry, Chemical Biology and Medicinal Chemistry:** biological functions; metabolic roles; pharmaceutical and therapeutic implications of carbohydrates and glycoconjugates.
- D. Biotechnology and Industry:** commercial applications of carbohydrates; methods of production; industrial and biotechnological developments; carbohydrates as organic raw materials. Contributions from Section D and associated studies will be the thematic focus of the agenda on Thursday, Aug. 31.

## Lecture Halls

Please Note

- The Morning Session on Monday August 28 from 08:30 - 12:00 hrs with the Opening Ceremony, the Whistler Award Lecture and two Plenary Lectures will be held at the Auditorium Maximum in the centre of the University Campus as indicated on the map.
- All other agenda of the Symposium from Monday August 28 afternoon to Friday September 1 afternoon will be at the Chemistry-Zoology Science Center.
- All *Plenary Lectures* will be given in the largest lecture hall. The lecture halls for *Invited Lectures* and *Oral Communications* of the individual sessions are indicated by head letters.

### **Slide Preview Room**

All speakers are advised to check their material and are asked to submit their slides to the staff in the Slide Preview Room at least two hours before the start of the session.

### **Poster Presentation**

All posters will be on display for the duration of the Symposium at the Chemistry-Zoology Centre in the glass corridor and the entrance hall. Posters can be mounted on Sunday Aug. 27 evening and should not be removed before Friday Sept. 1.

Authors of posters with odd numbers (Poster Session I) should present their poster on Tuesday Aug. 29, 14:00 - 16:15 hrs. The authors of posters with even numbers (Poster Session II) should present their poster on Thursday Aug. 31, 14:00 - 16:15 hrs.



## Auditorium Maximum

8:30	OPENING CEREMONY Chair: Joachim Thiem
	Opening: <b>Krista Sager</b> Deputy Mayor of the Freie und Hansestadt Hamburg and Senator for Science and Research
	Welcome: <b>Jürgen Lüthje</b> President Universität Hamburg
	Greeting: <b>Jürgen Heck</b> Dean Fachbereich Chemie
	Address on behalf of IUPAC: <b>Johannes F.G. Vliegenthart</b> Director Bijvoet Center, Utrecht, NL
9:00	WHISTLER AWARD Chair: James N. BeMiller
	Presentation of the Roy L. Whistler Award to <b>Anne Dell</b> , Imperial College, London, UK
	Whistler Award Lecture A-001 <i>Mass Spectrometry: A powerful tool for high sensitivity covalent structure analysis</i> <b>Anne Dell</b>
	PLENARY LECTURES
	Chair: Frieder W. Lichtenthaler
9:50	B-001 <i>Total synthesis and development of natural products using carbohydrates</i> <b>Kuniaki Tatsuta</b>
10:35	Coffee Break
	Chair: Johannes F.G. Vliegenthart
11:10	A-002 <i>Heparin: Structure and Biological Activities</i> <b>Robert J. Linhardt</b> and Melissa Fath
12:00	Lunch

**All other scientific agenda will take place in the  
Chemistry-Zoology Science Center**



## Session A

### INVITED LECTURE

Chair: Stephen J. Angyal

- 14:00 A-004 *NMR Studies on Oligosaccharide-Protein Complexes in the Weakly-Aligned State*  
**Steve W. Homans**, Hiroki Shimizu and Gary Thompson

### ORAL COMMUNICATIONS

Chair: Stephen J. Angyal

- 14:30 A-008 *Structural basis for chitin recognition by defense proteins: GlcNAc residues are bound in a multivalent fashion by extended binding sites in hevein domains*  
J. L. Asensio, F. J. Cañada, H.-C. Siebert, J. Laynez, A. Poveda, P. M. Nieto, U. M. Soedjanaamadja, J. J. Beintema, H.-J. Gabius, and **Jesús Jiménez-Barbero**
- 14:50 A-009 *Structure of heparin-pentasaccharide complexed with plasma protein antithrombin III*  
**Miloš Hricovíni**, Marco Guerrini, Antonella Bisio, Giangiacomo Torri, Maurice Petitou and Benito Casu
- 15:10 A-010 *NMR and SPR investigations of carbohydrate recognition by lectins*  
**Thomas Weimar** and Ralph Bukowski

## Session B-I

### INVITED LECTURE

Chair: András Lipták

- 14:00 B-004 *New methods for the synthesis of O- and C-oligosaccharides*  
**André Lubineau**, Christine Le Narvor, Claudine Augé and Yves Canac

### ORAL COMMUNICATIONS

Chair: András Lipták

- 14:30 B-013 *Neoglycoconjugates from the synthetic hexasaccharide fragment of the O-PS of Vibrio cholerae O:1, serotype Ogawa, and the DT mutant CRM9*  
**Pavol Kovác** and Jian Zhang
- 14:50 B-014 *Chemically synthesised neoglycoconjugates for the prevention of pneumococcal disease*  
**Dirk J. Lefeber**, Barry J. Bennaissa-Trouw, Harm Snippe, Johannis P. Kamerling, Johannes F.G. Vliegenthart
- 15:10 B-015 *Lauryl thioglycosides as versatile intermediates for the synthesis of macrolidic glycolipids*  
**Nobuo Sakairi**, Jun-ichi Furukawa, Hideaki Matsui, and Norio Nishi

15:30 Coffee



## Session B-II

### INVITED LECTURE

Chair: Thisbe K. Lindhorst

- 14:00 B-005 *1-Azasugars: Isofagomines, azafagomines and why they are glycosidase inhibitors*  
**Mikael Bols**, Steen U. Hansen, Anne Bülow, Xifu Liang, and Henrik H. Jensen

### ORAL COMMUNICATIONS

Chair: Thisbe K. Lindhorst

- 14:30 B-036 *Spirocyclopropane Inhibitors as Tool for the Topological Characterisation of the Active Site of Glycosidases*  
**Christian Blüchel**, Andrea Vasella
- 14:50 B-037 *Asymmetric Synthesis of Indolizidine Alkaloids by Ring-Rearrangement*  
**Huib Ovaa**, Roland Stragies, Gijs A. van der Marel, Jacques H. van Boom and Siegfried Blechert
- 15:10 B-038 *Strategies of nature and synthesis for the hydrophilization of benzoxazinones by monosaccharides*  
**Dieter Sicker**, Jens Andersch, Michael Kluge, Horst Wilde

## Session C

### INVITED LECTURE

Chair: James C. Paulson

- 14:00 C-003 *The catalytic mechanism of polysialyltransferases: a change in paradigm?*  
Martina Mühlenhoff, Michaela Windfuhr, Arnd Manegold, Birgit Gotza, and  
**Rita Gerardy-Schahn**

### ORAL COMMUNICATIONS

Chair: James C. Paulson

- 14:30 C-009 *Reduction of the expression of N-glycolylneuraminic acid in genetically engineered Chinese hamster ovary cells*  
**Stephane Chenu**, Y. Malykh, A. Grégoire, A. Visvikis, L. Shaw, R. Schauer, A. Marc, J.-L. Goergen
- 14:50 C-010 *Consequences of the loss of UDP-N-acetylglucosamine 2-epimerase/N-acetylmannosamine kinase, the key enzyme of sialic acid biosynthesis, in cells*  
**Stephan Hinderlich**, Oliver T. Keppler, Markus Berger, Lars Mantey, Michael Pawlita, Werner Reutter
- 15:10 C-011 *A Novel Disorder Caused by Defective Biosynthesis of N-Linked Oligosaccharides Due to Glucosidase I Deficiency*  
**Gerrit J. Gerwig**, C.M. de Praeter, E Bause, L.K. Nuytinck, J.F.G. Vliegthart, W. Breuer, J.P. Kamerling, M.F. Espeel, J.-J.R. Martin, A.M. de Paepe, N. Wen, C. Chan, G.A. Dacremont and R.N. van Coster

15:30 Coffee





## Session A

### ORAL COMMUNICATIONS

Chair: Jens Duus

- 16:00 A-011 *NMR experiments for the identification of the phytopathological properties in the exo-polysaccharide amylovoran.*  
**Andre de Bruyn**, Martine Maes, Kristine Orye, Roger Busson, Piet Herdewijn and Eric Messens.
- 16:20 A-012 *Conformational analysis and lectin-carbohydrate binding study of the Sd determinant-containing tetrasaccharide and some synthetic mimics*  
**José L. Jiménez Blanco**, Paul J. Erbel, Simon Haseley, Bas R. Leeftang, Johannis P. Kamerling, Johannes F.G. Vliegthart
- 16:40 A-013 *Carbohydrate - protein interactions in an aprotic solvent. A new analysis method in Glycosciences*  
**Hans-Christian Siebert**, Sabine André, Martin Frank, Herbert Kaltner, Nicolai V. Bovin, Claus-Wilhelm von der Lieth, Jesús Jiménez-Barbero, Johannes F. G. Vliegthart, Hans-Joachim Gabius

## Session B-I

### ORAL COMMUNICATIONS

Chair: Jean-Marie Beau

- 16:00 B-016 *Stereoselective Synthesis of Complex-type Glycan*  
Joachim Seifert, Matthias Lergenmüller and **Yukishige Ito**
- 16:20 B-017 *Synthesis of higher-membered oligosaccharide fragments of the LPS of Shigella sonnei*  
**István Bajza**, Anikó Tóth, Tivadar Kontrohr, Vince Pozsgay, András Lipták
- 16:40 B-018 *Conformationally restricted ceramide analogs*  
**Thomas Kolter**, Peter Sawatzki

17:00 End

18:00 Reception in the Rathaus (City Hall)



## Session B-II

### ORAL COMMUNICATIONS

Chair: Jan Hirsch

- 16:00 B-039 *Naphthalene Disaccharide Fragments as Building Blocks for Angucycline Synthesis*  
**Karsten Krohn** and Christiane Bäuerlein
- 16:20 B-040 *Bicyclic Amino Acids from Carbohydrates*  
**Francesco Peri**, Laura Cipolla, Enrico Caneva, Luca de Gioia and Francesco Nicotra
- 16:40 B-041 *A new synthetic approach towards N-alkylated 2-epi-valienamines via palladium-catalyzed coupling reaction*  
**Tony K. M. Shing** and Stanton H. L. Kok

## Session C

### ORAL COMMUNICATIONS

Chair: Hakon Leffler

- 16:00 C-012 *Structure of the glucan synthesising enzyme amylosucrase*  
**Lars K. Skov**, Osman Mirza, Anette Henriksen, Gabrielle Potocki de Montalk, Magali Remaud-Simeon, Patricia Sarcabal, René-Marc Willemot, Pierre Monsan, Michael Gajhede
- 16:20 C-013 *Three-Dimensional Structures of a Barley  $\beta$ -Glucan Exohydrolase Complexed with an Oligosaccharide Substrate Analogue and a Mechanism-Based Inhibitor*  
**Maria Hrmova**, Jose N. Varghese, Ross de Gori, Hugues Driguez and Geoffrey B. Fincher
- 16:40 C-014 *Identification of a Glycoprotein Receptor for LEC-6 Galectin from the Nematode *C. elegans**  
**Jun Hirabayashi**, Fumiko Ogawa, Yoichiro Arata, and Ken-ichi Kasai

17:00 End

18:00 Reception in the Rathaus (City Hall)

**Plenary Session (B-I)**

## PLENARY LECTURE

- Chair: Serge Pérez  
9:00 A-003 *Animal lectins that mediate cell-cell recognition events*  
**Kurt Drickamer**

**Session A**

## INVITED LECTURE

- Chair: Jeremy P. Carver  
9:45 A-005 *Conformational analysis of carbohydrates based on ensemble-average dynamic and geometric descriptors*  
**Catherine Hervé du Penhoat**, Céline Monteiro, Pavla Petrova, Anne Imberty, Karim Mazeau, Patrice Pellerin, Catherine Renard, and Serge Pérez

## ORAL COMMUNICATIONS

- Chair: Jeremy P. Carver  
10:15 A-014 *Ab initio study of the catalytic mechanism of inverting N-acetylglucosaminyltransferases: Reaction pathways and transition states*  
**Igor Tvaroska**, Isabelle André, and Jeremy P. Carver  
10:35 A-015 *NMR and Molecular Dynamics Structural Studies on a Heparin Model Synthetic Hexasaccharide*  
Jesus Angulo, **Pedro M. Nieto**, Jose L. de Paz, Manuel Martin-Lomas

**Session B-I**

## INVITED LECTURE

- Chair: Robert V. Stick  
9:45 B-006 *From Stereo-Specificity to Stereo-Diversity: Chemo-Enzymatic Approaches to Carbohydrate Synthesis*  
**Wolf-Dieter Fessner**

## ORAL COMMUNICATIONS

- Chair: Robert V. Stick  
10:15 B-019 *Chemoenzymatic Synthesis of a Pentaantennary N-Glycan Icosasaccharide*  
**Gislinde Gundel** and Carlo Unverzagt  
10:35 B-020 *The Precise Chemoenzymatic Synthesis of <sup>13</sup>C-Labeled Sialyloligosaccharide Analogue on an Intact Glycoprotein and its Conformational Analysis*  
**Tatsuo Miyazaki**, Hajime Sato, Tohru Sakakibara, Yasuhiro Kajihara

- 10:55 Coffee



## Session B-II

### INVITED LECTURE

Chair: Paul Kosma

- 09:45 B-007 *Synthesis and evaluation of sialylmimetics as probes of carbohydrate-recognising proteins*  
**Mark von Itzstein**

### ORAL COMMUNICATIONS

Chair: Paul Kosma

- 10:15 B-042 *Novel One-Pot Syntheses of Divalent Carbohydrates using the Multicomponent Ugi Reaction*  
Helena Bradley and **Paul V. Murphy**
- 10:35 B-043 *Convergent C-Glycoside Synthesis via the Ramberg-Bäcklund Reaction: Active Analogs of Antitumor Glucolipids and Galactoceramides*  
Guangli Yang, **Richard W. Franck**, Hoe-Sup Byun, Robert Bittman, Gilbert Arthur, and Pranati Samadder

## Session C

### INVITED LECTURE

Chair: Helmut Brade

- 09:45 C-004 *Biosynthetic sorting of chondroitin sulfate and heparan sulfate: a novel  $\beta$ -GalNAc transferase and an  $\alpha$ -GlcNAc transferase encoded by a member of the tumor suppressor EXT gene family*  
**Kazuyuki Sugahara**, Hiromi Shimakawa, Satomi Nadanaka, Fumitaka Goto, Jun-ichi Tamura, Klaus W. Neumann, Tomoya Ogawa, Hiroshi Kitagawa

### ORAL COMMUNICATIONS

Chair: Helmut Brade

- 10:15 C-015 *Structure, Function, and Mechanism of Hyaluronan Degrading Enzymes*  
**Mark J. Jedrzejas**
- 10:35 C-016 *Assembly of composite P-selectin ligand on polymeric template*  
**Nicolai V. Bovin**, Nikolay E. Nifant'ev, Tatyana V. Pochechueva, Oxana E. Galanina, Michael I. Bird

- 10:55 Coffee



## Session A

### ORAL COMMUNICATIONS

Chair: Harold J. Jennings

- 11:30 A-016 *Hydrogen Bonding in Carbohydrates: the "Gauche Effect" Revisited*  
Karl Kirschner and **Robert J. Woods**
- 11:50 A-017 *Elucidating the dynamics of carbohydrates from experimentally tested simulations*  
**Andrew Almond**, John K. Sheehan, Jens Ø. Duus
- 12:10 A-018 *Molecular modeling of the interaction between heparin and chemokines*  
Aurélien Grosdidier, Hugues Lortat-Jacob and **Anne Imberty**
- 12:30 A-019 *Comparison of disaccharide conformational energies with observed crystal structures*  
**Alfred D. French**, Anne-Marie Kelterer, Glenn P. Johnson, Michael K. Dowd

## Session B-I

### ORAL COMMUNICATIONS

Chair: Carlo Unverzagt

- 11:30 B-021 *Regio- and Enantioselective Galactosylation at the Primary Position of an Acyclic Amino Alcohol by Bovine  $\beta$ 1,4-Galactosyltransferase*  
**Yoshihiro Nishida**, Hideaki Tamakoshi, Kazukiyo Kobayashi and Joachim Thiem
- 11:50 B-022 *Chemoenzymatic Synthesis of Biotin-tagged UDP- $\alpha$ -D-galactose and UDP-N-acetyl- $\alpha$ -D-galactosamine for the Transfer by Glycosyltransferases*  
T. Bülter, R. Gutiérrez Gallego, T. Schumacher, D. Namdjou, J.P.Kamerling, J.F.G. Vliegthart, H. Clausen, **Lothar Elling**
- 12:10 B-023 *Synthesis of Biosynthetic Intermediates of Plant and Bacterial Saccharides*  
**Werner Klaffke**
- 12:30 B-024 *Synthesis of GDP-D-Rhamnose from GDP-D-Mannose in *Aneurinibacillus thermoaerophilus* L420-91*  
**Bernd Kneidinger**, Michael Graninger, Paul Messner

12:50 Lunch



## Session B-II

### ORAL COMMUNICATIONS

Chair: Inge Lundt

- 11:30 B-044 *Synthesis of C-glycosylated neoglycoconjugates*  
**Bernhard Westermann**, Armin Walter
- 11:50 B-045 *Carbohydrate Carbocyclization by Zinc-Mediated Domino Reaction and Ring-Closing Metathesis*  
Lene Hyldtoft and **Robert Madsen**
- 12:10 B-046 *1-Naphthylmethyl, a New Benzyl-Type Protecting Group*  
**Péter Fügedi**, Zsuzsa Antal
- 12:30 B-047 *Iodine, a Unique and Novel Reagent in Glycosylation Chemistry*  
**K.P. Ravindranathan Kartha** and Robert A. Field

## Session C

### ORAL COMMUNICATIONS

Chair: Berit Smestad Paulsen

- 11:30 C-017 *Sialylated epitope for influenza virus present in human granulocytes*  
**Halina Miller-Podraza**, Lena Johansson, Petra Johansson and Mikhail Matrosovich
- 11:50 C-018 *Marine sponge cellular adhesion via carbohydrate self-recognition*  
**Simon R. Haseley**, Henricus J. Vermeer, Johannes P. Kamerling, Johannes F. G. Vliegthart
- 12:10 C-019 *The cysteine-rich domain of the macrophage endocytosis receptor recognizes multiple classes of sulphated oligosaccharides*  
**Christine Leteux**, Michel C. Nussenzweig, Ineo Ishizuka, Ten Feizi
- 12:30 C-020 *The Asn-420-linked sugar chain in human epidermal growth factor receptor suppresses ligand-independent spontaneous oligomerization: Possible role of a specific sugar chain in controllable receptor activation*  
Takeo Tsuda, Yoshitaka Ikeda and **Naoyuki Taniguchi**

12:50 Lunch



## Poster Session

14:00 POSTER SESSION I

**All Posters with Odd Numbers**

15:30 Coffee

INVITED LECTURES

### Session A

Chair: Lennart Kenne

16:15 A-006 *Molecular models of the association of (hemi-)celluloses with cellulose surfaces*  
**Bas R. Leeftang**, J. Albert van Kuik, Johannes F.G. Vliegthart, Loes M.J. Kroon-Batenburg, Antonius B.M. Linssen, and Jan Kroon

### Session B-I

Chair: Richard R. Schmidt

16:15 B-008 *Chemical synthesis towards understanding the function of endotoxic entity of bacterial lipopolysaccharide*  
**Shoichi Kusumoto**, Koichi Fukase, Masato Oikawa, Yoshiyuki Fukase, Hiroaki Yoshizaki, Yasuo Suda

### Session B-II

Chair: Roy Gigg

16:15 B-009 *Studying carbohydrate-to-carbohydrate interactions with model systems*  
**S. Penadés**

### Session C

Chair: Ernst Th. Rietschel

16:15 C-005 *Cell surface selections for aberrant carbohydrate metabolism using unnatural substrates*  
**Carolyn R. Bertozzi**

## Plenary Session (B-I)

PLENARY LECTURE

Chair: Richard R. Schmidt

16:45 B-002 *Synthesis of Carbohydrate-Based Antibiotics*  
**Chi-Huey Wong**

17:30 End

20:00 Organ Concert in St. Katharinen





**Plenary Session (B-I)**

## PLENARY LECTURE

Chair: Andrea T. Vasella

- 9:00 C-001 *Functions of Glycosphingolipids at Membrane Surfaces- Pathogenesis of Neurodegenerative and Dermal Genetic Disorders*  
**Konrad Sandhoff**

**Session A**

## ORAL COMMUNICATIONS

Chair: Göran Widmalm

- 9:45 A-020 *X-ray structure determination and modelling of the cyclic tetrasaccharide cyclo{⑥}- $\alpha$ -D-Glcp-(1③)- $\alpha$ -D-Glcp-(1⑥)- $\alpha$ -D-Glcp-(1③)- $\alpha$ -D-Glcp-(1⑥)}*  
Gail M. Bradbrook, Katrin Gessler, Gregory L. Côté, Frank Momany, Peter Biely,  
**Serge Pérez**, Anne Imberty
- 10:05 A-021 *Crystal structure of the sugar complexes of xylanase which utilizes a galactose-binding lectin domain to bind xylan*  
**Zui Fujimoto**, Atsushi Kuno, Satoshi Kaneko, Isao Kusakabe, and Hiroshi Mizuno

**Session B-I**

## ORAL COMMUNICATIONS

Chair: Jacques Defaye

- 9:45 B-025 *Chemoenzymatic syntheses of glycopeptides and evaluation of their functional changes*  
**Katsumi Ajisaka**, Mariko Miyasato, Andreas Naundorf, Aruto Yoshida, Kazuo Kobayashi, Makoto Takeuchi, Chikako Ito, Yasuko Fujita, and Syuich Oka
- 10:05 B-026 *Use of selectively acylated glycosyl donors and acceptors in reactions catalyzed by glycosidases*  
**Vladimír Kren**, Lucie Hušáková, Lenka Weignerová, Zdenka Hunková, Marek Kuzma, Monica Casali, Sergio Riva

- 10:25 Coffee



## Session B-II

### ORAL COMMUNICATIONS

Chair: Bertil Samuelsson

- 9:45 B-048 *The chemical synthesis of uridine diphosphate N-acetyl-**b**-L- and **a**-D-fucosamines, putative precursors in the biosynthesis of staphylococcal capsular polysaccharides*  
Petr A. Illarionov, Vladimir I. Torgov, **Vladimir N. Shibaev**
- 10:05 B-049 *Acid-catalyzed methanolysis of some sugar nitronates*  
Božena Pribulová, Mária Petrušová, Erika Lattová, James N. BeMiller, **Ladislav Petruš**

## Session C

### ORAL COMMUNICATIONS

Chair: Ernst Heinz

- 9:45 C-021 *Novel Methods in Peptide and Protein Glycosylation*  
Sarah J. Ward, Mark A. Robinson, Kevin P. Corbett, Michael A.T. Maughan, Justin Marston, Martin. P. Green, and **Benjamin G. Davis**
- 10:05 C-022 *Metabolic engineering of cell surface glycoforms of *Haemophilus ducreyi* - biosynthetic pathways and mass spectrometric analysis*  
**Birgit Schilling**, Scarlett Goon, Sara P. Gaucher, Nicole M. Samuels, Julie A. Leary, Carolyn R. Bertozzi, Bradford W. Gibson

10:25 Coffee



## Session A

### ORAL COMMUNICATIONS

Chair: Otto Holst

- 11:00 A-022 *Sensitive fluorophore-tagging analytical method of heparin (Hep)/heparan sulfate (HS)-derived disaccharides generated by deaminative cleavage with nitrous acid*  
**Shuhei Yamada**, Momoyo Ueno, Yukihiro Okada, Junko Kishibe, and Kazuyuki Sugahara
- 11:20 A-023 *An Efficient Assay for Combinatorial Chemistry using NMR*  
**Hiroki Shimizu**, Gary Thompson, Steve Homans
- 11:40 A-024 *N-methylated Acetamidino-Groups: New Components in the Lipopolysaccharide (Endotoxin) of Legionella pneumophila serogroup 1*  
**Oliver Kooistra**, Edeltraud Lüneberg, Matthias Frosch, Ulrich Zähringer
- 12:00 A-025 *The structure of terminal groups of the polysaccharide chains of some LPS's*  
**Evguenii Vinogradov**, Malcolm Perry

## Session B-I

### ORAL COMMUNICATIONS

Chair: Subramaniam Sabesan

- 11:00 B-027 *Convenient chemo-enzymatic synthesis of the methyl pentuloses, 1-deoxy-D-ribulose and 1-deoxy-D-xylulose from 2-deoxy-D-glucose*  
**Friedrich Giffhorn**, Sabine Köpper, Alexander Huwig and Stephan Freimund
- 11:20 B-028 *Synthesis and Reaction of Telluronylglycosides as New Glycosyl Donors*  
**Kwan Soo Kim**, Song On An, Sang Soon Choi, Kyu Uk Han
- 11:40 B-029 *Efficient Synthesis of **b**-(1@4)-linked galacto-oligosaccharides*  
**Markus Oberthür**, Siegfried Peters, and Frieder W. Lichtenthaler
- 12:00 B-030 *New **a**-stereoselective sialylations by the neighboring group participation of thioethyl group at 1-position or trichloroacetamide group at 5-position*  
**Shigeomi Horito**, Yuichi Takahashi, Takashi Nemoto

12:20 Lunch

13:30 Excursions



## Session B-II

### ORAL COMMUNICATIONS

Chair: Daniel Plusquellec

- 11:00 B-050 *Combinatorial Synthesis of Multivalent Cyclic Neoglycopeptides as Potential Lectin Ligands*  
**Valentin Wittmann**, Sonja Seeberger
- 11:20 B-051 *Towards Glycoproteins Synthesis - Solution and Solid Phase Catalytic O-Glycosylation of Peptides*  
**Jan Ramza** and Piotr Krzeczynski
- 11:40 B-052 *Polymer-assisted synthesis of glycoconjugates*  
**Andreas Kirschning**, Andreas Schönberger, Janis Jaunzems, Alexander Jung, and Martin Jesberger
- 12:00 B-053 *New methodology for oligosaccharide synthesis based on affinity separation*  
**Koichi Fukase**, San-qi Zhang, Yoshiyuki Fukase, Minoru Izumi, and Shoichi Kusumoto

## Session C

### ORAL COMMUNICATIONS

Chair: Haralambos Parolis

- 11:00 C-023 *Characterization of Aspergillus niger family 3  $\beta$ -glucosidase mechanism*  
**Ira Marton**, Ben-Ami Bravdo, Stephen G. Withers, Andrea Vasella and Oded Shoseyov
- 11:20 C-024 *Characterization of Conserved Inner-Core Lipopolysaccharide Epitopes in Neisseria meningitidis*  
A.D. Cox, M.A.J. Gidney, S. Lacelle, A. Martin, J.S. Plested, K. Makepeace, F. MacKinnon, J.-R. Brisson, E.R. Moxon, and **James C. Richards**
- 11:40 C-025 *Characterization of the Antibody Response against Lipopolysaccharide of Chlamydia*  
**Sven Müller-Loennies**, C. Roger MacKenzie, Helmut Brade, and Lore Brade
- 12:00 C-026 *Characterization of lipopolysaccharide-binding of spike H protein of bacteriophage  $\phi$ X174*  
**Minoru Inagaki**, Hirohito Wakashima, Akiyoshi Tanaka, Tomoko Kawaura, Ryoko Suzuki, Shuichi Karita, Shiro Nishikawa, and Naoki Kashimura

12:20 Lunch

13:30 Excursions



## Plenary Session (B-I)

### PLENARY LECTURE

Chair: Bruce Stone

- 9:00 D-001 *Starch-degrading Enzymes – Structure/Function Insights and Improvements by Protein Engineering*  
**Birte Svensson**

## Session D-III (A)

### ORAL COMMUNICATIONS

Chair: Horst Kunz

- 9:45 D-016 *Development of an Automated Oligosaccharide Synthesizer*  
**Peter H. Seeberger** and Obadiah J. Plante
- 10:15 D-017 *Solid-phase synthesis of N-glycoamino-acid building blocks and their use on continuous surface*  
Laurence Jobron, Sladana Grbic, **Gerd Hummel**

## Session D-I (B-I)

### INVITED LECTURE

Chair: Angela Savage

- 9:45 D-003 *An Access to Glycoconjugate Libraries through Multicomponent Reactions*  
**Oswald Lockhoff**

### ORAL COMMUNICATION

Chair: Angela Savage

- 10:15 D-010 *Self-Assembled Morphology and Functional Control of 1-Aldosamide Bolaamphiphiles*  
**Mitsutoshi Masuda**, Volkmar Vill and Toshimi Shimizu

- 10:35 Coffee



## Session D-II (B-II)

### INVITED LECTURE

Chair: Beat Ernst

- 09:45 B-010 *Synthesis of glycopeptides - Recognition by T cells in a model system and rheumatoid arthritis*  
Johan Broddefalk, Mikael Elofsson, Björn Holm, Petter Sjölin, and **Jan Kihlberg**

### ORAL COMMUNICATION

Chair: Beat Ernst

- 10:15 D-005 *Concentrated aqueous solutions of xanthan and scleroglucan display intriguing rheology*  
**David A. Brant** and Hucheng Lee

## Session D-IV (C)

### INVITED LECTURE

Chair: Hans Peter Wessel

- 09:45 C-006 *Studies on CM101 and its target receptor HP59 in pathoangiogenic dependent disease processes*  
**Carl G. Hellerqvist**

### ORAL COMMUNICATION

Chair: Hans Peter Wessel

- 10:15 D-023 *Effects of culture pH on production rates and glycosylation of murine monoclonal antibody R<sub>24</sub>*  
**Sven E. Kemminer**, H.S. Conradt, M. Nimtz, D. Šagi, J. Peter-Katalinic, J. Müthing

10:35 Coffee

**Session D-III (A)**

## ORAL COMMUNICATIONS

Chair: Oscar Varela

- 11:00 D-018 *Solid-phase synthesis of glycopeptides on a silyl ether-based linker*  
**Yoshiaki Nakahara**, Hironobu Hojo, Akira Ishii, Kazuhiko Nakamura, Yuko Nakahara,  
and Yukishige Ito
- 11:20 D-019 *Gluconolactone-based Saccharide Polymers*  
Bernd Skeries, Anke Glümer, **Klaus Buchholz**
- 11:40 D-020 *Carbohydrate-based synthesis of the polar head of standard branched oligoglycerol surfactants*  
**Stephanie Cassel**, Michel Lafosse and Patrick Rollin
- 12:00 D-021 *Hydrophilic imidazoles, pyrazoles, pyrazines, and pyridines from sugars*  
**Eckehard Cuny**, Andreas Brust, Stephan Rapp, Frieder W. Lichtenthaler

**Session D-I (B-I)**

## ORAL COMMUNICATIONS

Chair: Johannes P. Kamerling

- 11:00 D-011 *Development of a conjugate vaccine against meningococcal type A bacteria: Physicochemical characterisation of the saccharide-component*  
**Neil Ravenscroft**, Giovanni Averani, Angela Bardotti, Antonella Bartoloni, Sandro D'Ascenzi, Aldo Giannozzi, Francesco Norelli, Daniela Proietti, Stefano Ricci, Paolo Costantino
- 11:20 D-012 *Scale-Up and Production of Zstat-Flu<sup>TM</sup> and other Carbohydrates for Diagnostic and Therapeutic Applications*  
**Om Srivastava**, Geeta Srivastava, Rizk Hanna, Minghui Du, Wenyi Fu, Chang Chun Ling, Roberto Mendez, Darol Maunder, Aravind Liav, Craig Shimaskai
- 11:40 D-013 *Side reactions and byproduct formation in the system NMMO / cellulose (Lyocell process)*  
**Antje Potthast**, Thomas Rosenau, Andreas Hofinger, Paul Kosma
- 12:00 D-014 *Vinylogous Amides in Carbohydrate Chemistry*  
**Laurent Bornaghi**, J.Papageorgiou, J.Seifert, L.Singh, S.Taylor, N.Drinnan, M.Broadhurst, M.West and G.Dekany
- 12:20 Lunch



## Session D-II (B-II)

### ORAL COMMUNICATIONS

Chair: Richard H. Furneaux

- 11:00 D-006 *Elsinan Produced by *Elsinoe* Fungi; Fine Structure, Modification and Utilization*  
**Akira Misaki**, Y. Tsumuraya, Y. Ohe, and M. Kakuta
- 11:20 D-007 *Colloid-chemical properties of chitosan*  
**Svetlana Yu. Bratskaya**, M.V. Shamov, D.V. Chervonetskiy
- 11:40 D-008 *The Influence of Plasticiser on the Molecular Organisation in Dry Amylopectin*  
**Peter H. Kruiskamp**, A.L.M. Smits, J.J.G. van Soest, and J.F.G. Vliegenthart
- 12:00 D-009 *Canonical correlation analysis of FT-IR and GC of olive pulp cell wall polysaccharide extracts*  
**António Barros**, Ana Reis, Isabel Mafra, Susana Santos, Ivonne Delgadillo, Manuel A. Coimbra

## Session D-IV (C)

### ORAL COMMUNICATIONS

Chair: Roland Schauer

- 11:00 D-024 *Carbohydrate Analysis Methods for the Characterization of Recombinant Glycoproteins*  
**Rolf Nuck**, Martin Gohlke, Ulrich Mach, Martin Zimmermann-Kordmann, Detlef Grunow, Claudia Fieger, Barbara Volz, Rudolf Tauber and Werner Reutter
- 11:20 D-025 *Thermostabilization of the maltogenic  $\alpha$ -amylase Novamyl using multiple rounds of directed evolution*  
**Torben P. Frandsen**, Joel R. Cherry, Michael H. Lamsa, Aubrey Jones, Alan Sloma, Brian Gorre-Clancy, and Allan Svendsen
- 11:40 D-026 *Heparins from K5 polysaccharide*  
**Pasqua Oreste**, G.Zoppetti, J.Chini, B.Febbruari, S.Miletti
- 12:00 D-027 *Augmentation of glycosylation in cells treated with glycoside primers*  
**Maria Carmelita Z. Kasuya**, Hideki Nakajima, Sadako Yamagata and Tatsuya Yamagata

12:20 Lunch





## Poster Session

14:00 POSTER SESSION II

**All Posters with Even Numbers**

15:30 Coffee

### Session D-III (A)

ORAL COMMUNICATION

Chair: Arnold E. Stütz

16:15 D-022 *Sucrose – an Exceptional Molecule for Enzymatic Synthesis*  
**Manfred Vogel**

### Session D-I (B-I)

INVITED LECTURE

Chair: Tomoya Ogawa

16:15 D-004 *Synthesis of spacers 3-O-sulfoglucuronyl lacto-N-neotetraose (HNK-1 pentasaccharide) and neoglycoconjugates thereof as instruments for glycobiology research*  
**Nikolay E. Nifant'ev**

### Session D-II (B-II)

ORAL COMMUNICATION

Chair: Bengt Lindberg

16:15 D-015 *Combinatorial split synthesis libraries of glycopeptides. Identification of high affinity ligands for carbohydrate receptors*  
**Morten Meldal, Koen Halkes, Phaedria St. Hilaire and Klaus Bock**

### Session D-IV (C)

INVITED LECTURE

Chair: Yasuo Inoue

16:15 C-007 *New approaches in the study of human sialidases*  
**Guido Tettamanti, Eugenio Monti, Amelia Fiorilli and Bruno Venerando**

### Plenary Session (B-I)

PLENARY LECTURE

Chair: Tomoya Ogawa

16:45 D-002 *Amino Acids Derived from Carbohydrates*  
**George W.J. Fleet**

17:30 End

19:30 Symposium Dinner at the Börse (Stock Exchange)



**Plenary Session (B-I)**

## PLENARY LECTURE

- Chair: Konrad Sandhoff
- 9:00 C-002 *N-linked protein glycosylation in the endoplasmic reticulum: from the model organism *Saccharomyces cerevisiae* to human diseases*  
**Markus Aebi**

**Session A**

## INVITED LECTURE

- Chair: Annamaria Naggi
- 9:45 A-007 *Proteomics-based Strategies in Mass Spectrometry of Glycoproteins and Glycolipids*  
**Jasna Peter-Katalinic**

## ORAL COMMUNICATION

- Chair: Annamaria Naggi
- 10:15 A-026 *Structural Elucidation of Zwitterionic Sugar Cores from Glycosphingolipids by Nano-Electrospray Ionization-Ion Trap Mass Spectrometry*  
Claudia H. Friedl, **Günter Lochnit**, Rudolf Geyer, Michael Karas and Ute Bahr

**Session B-I**

## INVITED LECTURE

- Chair: Yves Chapleur
- 9:45 B-011 *New sulfated gangliosides: synthesis and novel biological functions*  
**Makoto Kiso**

## ORAL COMMUNICATION

- Chair: Yves Chapleur
- 10:15 B-031 *Stereoselective synthesis of isosteric (1 @ 6)-oligosaccharides by iterative Wittig olefination*  
Alessandro Dondoni, **Alberto Marra**, Mamoru Mizuno

- 10:35 Coffee



## Session B-II

### INVITED LECTURE

Chair: Manuel Martin-Lomas

- 9:45 B-012 *Synthesis of a New Class of Glycosidase Inhibitors: Salacinol, its Stereoisomers, and Nitrogen and Selenium Analogues*  
**B. Mario Pinto**, Ahmad Ghavami, Blair D. Johnston

### ORAL COMMUNICATION

Chair: Manuel Martin-Lomas

- 10:15 B-054 *Glycopolymers as polymeric substrates for glycosyl transferases*  
**Florence Sallas**, Kuriko Yamada, Shin-Ichiro Nishimura

## Session C

### INVITED LECTURE

Chair: Soerge Kelm

- 9:45 C-008 *Characterisation of new sialic acid binding receptors (Siglecs) on cells of the innate immune system*  
**Paul R. Crocker**

### ORAL COMMUNICATION

Chair: Soerge Kelm

- 10:15 C-027 *Absence of testicular seminolipid and renal galactosyl sulfatide in UDP-galactose: ceramide galactosyltransferase-deficient mice leads to arrest of spermatogenesis and compensatory increase of more polar sulfoglycolipids in renal tubules*  
Keiko Tadano-Aritomi, Hirokazu Fujimoto, Toshiyuki Hikita, Kunihiko Suzuki and  
**Ineo Ishizuka**

10:35 Coffee



## Session A

### ORAL COMMUNICATIONS

Chair: Per-Erik Jansson

- 11:00 A-027 *Structural Studies of CV-70 Polysaccharide*  
**Adilma Scamparini**, Daniela Mariuzzo, Heloísa Fujihara, Ronaldo Jacobusi and Claire Vendruscolo
- 11:20 A-028 *A new model for the substitution pattern in the polymer chain of polysaccharide derivatives*  
**Petra Mischnick**, Christian Hennig
- 11:40 A-029 *Sulfated galactans isolated from red seaweeds*  
**Miguel D. Nosedá**, Jean P. Cauduro, Marco A. Cardoso, Diogo R. B. Ducatti, Maria E. R. Duarte
- 12:00 A-030 *Synthesis of Conformationally Locked L-Iduronic Acid Derivatives :Direct Evidence for a Critical Role of the Skew-Boat <sup>2</sup>S<sub>0</sub> Conformer in the Activation of Antithrombin by Heparin*  
Sanjoy K. Das, Jean-Maurice Mallet, Jacques Esnault, **Pierre-Alexandre Driguez**, Philippe Duchaussoy, Philippe Sizun, Jean-Marc Herbert, Maurice Petitou, Pierre Sinay

## Session B-I

### ORAL COMMUNICATIONS

Chair: Jean-Claude Jacquinet

- 11:00 B-032 *Stereoselective and Regioselective Synthesis of a Pentasaccharide related to Escherichia coli O : 25*  
Rina Saksena, Sapna S. Srivastav, Naveen K. Khare and **Anakshi Khare**
- 11:20 B-033 *Chemical synthesis of **b**-D-GlcpA(2SO<sub>4</sub>)-(1 @3)-D-GalpNAc(6SO<sub>4</sub>), the disaccharide repeating unit of shark cartilage chondroitin sulfate D, and of its methyl **b**-D-glycoside derivative*  
**Nathalie Karst** and Jean-Claude Jacquinet
- 11:40 B-034 *Synthesis of phosphorylated and sulfated glycosyl serines that could be utilized as probes to study the biosynthesis of glycosaminoglycans*  
**Jun-ichi Tamura**, Junko Nishihara
- 12:00 B-035 *A Novel **b**-Directing Fructofuranosyl Donor Concept. Stereospecific Synthesis of Sucrose*  
**Stefan Oscarson** and Fernando Sehgelmeble



## Session B-II

### ORAL COMMUNICATIONS

Chair: Vince Pozsgay

- 11:00 B-055 *A Novel and Efficient Synthesis of Dimeric Le Oligosaccharide on Polymeric Support*  
**Geert-Jan Boons** and Tong Zhu
- 11:20 B-056 *Systematic synthesis of carbosilane dendrimers functionalized with the globotriaosyl moieties having neutralization potency for Verotoxins*  
**Koji Matsuoka**, Mikiko Terabatake, Kiyotaka Nishikawa, Yasuhiro Natori, Yasuaki Esumi, Daiyo Terunuma, and Hiroyoshi Kuzuhara
- 11:40 B-057 *Oligosaccharide-Based Glycodendrimers*  
**W. Bruce Turnbull**, Anthony R. Pease and J. Fraser Stoddart
- 12:00 B-058 *Multivalent Carbohydrate Ligands Based on Dendrimers*  
Ioannis Vrasidas, Rob M. J. Liskamp, **Roland J. Pieters**

## Session C

### ORAL COMMUNICATIONS

Chair: Elizabeth Hounsell

- 11:00 C-028 *Characterization of GalCer expression factor-1 (GEF-1), which induces morphological changes and glycolipid expression in epithelial cells*  
Kiyoshi Ogura and **Tadashi Tai**
- 11:20 C-029 *Human milk oligosaccharides inhibit the adhesion of Listeria monocytogenes, Escherichia coli, vibrio cholerae and salmonella fyris*  
**Giovanni V. Coppa**, S.Bruni, L.Zampini, T.Galeazzi, R.Capretti, B.Facinelli, O.Gabrielli
- 11:40 C-030 *Molecular and functional analysis of lectin-like activating receptors of natural killer lymphocytes*  
**Karel Bezouška**, Jirí Pavlíček, Bruno Sopko, Petr Novák, Anna Fišerová, Miloslav Pospíšil, and Thisbe K. Lindhorst
- 12:00 C-031 *Towards Carbohydrate-Based Catalytic Systems: An Alternative View on the Origin of Life*  
**Timor Baasov**, Yaakov Benenson, and Dmitry Solomon

## Plenary Session (B-I)

### PLENARY LECTURE

Chair: Per J. Garegg

- 12:20 B-003 *The Chance to Discover Chance in Discovery*  
**Robin J. Ferrier**
- 13:05 Closing
- 13:20 Lunch

**Poster Session I****14:00 Tuesday, August 29**

- A-101 *Structural studies of the O-specific polysaccharide of Citrobacter O1a,1b,1c containing an α-D-ribofuranosyl group*  
**Nina A. Kocharova**, George V. Zatonsky, Alexander S. Shashkov, Yuriy A. Knirel
- A-103 *Application of triflic acid solvolysis for isolation of complex monosaccharide derivatives from bacterial polysaccharides*  
**Andrei V. Perepelov**, Sof'ya N. Senchenkova, Alexander S. Shashkov, Yuriy A. Knirel, Antoni Rozalski, Maciej Cedzynski, Wieslaw Kaca
- A-105 *Elucidation of the structure of the O-specific polysaccharide of Hafnia alvei PCM 1189 using NMR spectroscopy and chemical methods*  
**George V. Zatonsky**, Nina A. Kocharova, Ewa Katzenellenbogen, Alexander S. Shashkov, Yuriy A. Knirel
- A-107 *O-Methylation in the O polysaccharide of Pseudomonas syringae pv. phaseolicola GSPB 1552*  
**Evelina L. Zdorovenko**, George V. Zatonsky, Vladimir Ovod, Nina A. Kocharova, Alexander S. Shashkov, Yuriy A. Knirel
- A-109 *FT-IR spectroscopy in detection of polysaccharides in foods*  
**Jana Copíková**, Andryi Synytsya, Marcela Cerná, Jitka Kaasová
- A-111 *Structural Diversity of Chitosan and Its Complexes*  
**Kenji Okuyama**, Keiichi Noguchi, Kozo Ogawa
- A-113 *Novel structural features in lipopolysaccharides from non-typeable strains of Haemophilus influenzae.*  
Anna-Karin Karlsson, Martin Månsson, Per-Henrik Hedman, Derek Hood, James C. Richards, E. Richard Moxon and **Elke K. H. Schweda**
- A-115 *Solution properties of PAMAM and lactosylated PAMAM dendrimers and their structural characteristics*  
**E. V. Korneeva**, N. Errington, S. E. Harding, R. Roy, and G. M. Pavlov
- A-117 *Comparison of the b, k and i-Carrageenans by using the Molecular Modelling and Molecular Dynamics Simulation*  
**Kazuyoshi Ueda**, John Brady
- A-119 *Characterization of native lipopolysaccharide by MALDI-TOF-MS*  
**Buko Lindner**, Werner Brabetz, Otto Holst
- A-121 *Conformation Analysis of Oligosaccharide in Antigen Analog from Mycobacterium Leprae*  
**Akihiro Yamane**, Tsuyosi Fujiwara, Toshifumi Yui, Koichi Fukase, Shoichi Kusumoto, Minoru Inagaki, Naoki Kashimura
- A-123 *Structure of the O-Specific Polysaccharide of Proteus myxofaciens*  
**Anna N. Kondakova**, Alexander S. Shashkov, Sof'ya N. Senchenkova, Yuriy A. Knirel, Krystyna Zych, Zygmunt Sidorczyk
- A-125 *Advances in structure analysis of polysaccharide derivatives by ESI-MS*  
**Wulff Niedner**, Jürgen Heinrich, Petra Mischnick
- A-127 *Characterisation of the pseudomonas syringae pv. atrofaciens imv 948 lipopolysaccharide*  
**Galina M. Zdorovenko**, Alexander S. Shashkov, Evelina L. Zdorovenko, Nina A. Kocharova, Lyudmila M. Yakovleva, Yuriy A. Knirel, Klaus Rudolph



- A-129 *Structural Studies on Lemnan as Pectin from Lemna minor L.*  
R.G.Ovodova, V.V. Golovchenko, A.S. Shashkov, and **Yu.S. Ovodov**
- A-131 *Generation of a Knowledge Base to Rapidly Explore the Conformational Space of N-Glycans*  
**Andreas Bohne**, Claus-Wilhelm von der Lieth
- A-133 *Oligosaccharides display both rigidity and high flexibility in water as determined by molecular dynamics simulation and NMR experiments: Evidence of anti- $\phi$  and of anti- $\psi$  torsions at the same glycosidic linkage*  
**Christer Höög**, Clas Landersjö, and Göran Widmalm
- A-135 *Pyranosides as ligands of organo-titanium and -zirconium compounds*  
**Lars Jessen** and Jürgen Heck
- A-137 *Hydrolysis and transglycosylation of hyaluronic acid oligomers by testicular hyaluronidase -- relationship between enzyme action and oligomer size --*  
**Mitsuhiro Kinoshita**, Akiko Okino, Yasuo Oda and Kazuaki Kakehi
- A-139 *Conformational Analysis of Nucleotide Sugars*  
**Andreas Willecke**, Sabine Köpper
- A-141 *Assignments of all protons in [3-<sup>13</sup>C]-NeuAc on a glycoprotein by a newly established HSQC-TOCSY-NOESY-TOCSY technique*  
Tatsuo Miyazaki, Hajime Sato, Tohru Sakakibara, **Yasuhiro Kajihara**
- A-143 *Crystallization and preliminary X-ray analysis of the inulin fructotransferase (DFA III-producing) from *Arthrobacter globiformis**  
**Mitsuru Momma**, Zui Fujimoto, Kazutomo Haraguchi, Hiroshi Mizuno
- A-145 *Mutual separation of hinge-glycopeptide isomers bearing five GalNAc residues from normal human serum IgA1 by capillary electrophoresis*  
**Hitoo Iwase**, Atsushi Tanaka, Yoshiyuki Hiki, Tohru Kokubo, Takashi Sano, Ikuko Ishii-Karakasa, Kazunori Toma, Yutaka Kobayashi, Kyoko Hotta
- A-147 *On the interdependence of proton - and electron-donor capacities of hydroxyl - containing molecules*  
**Igor S. Perelygin**
- A-149 *Heparin Binding Glycoprotein from Squid Ovary*  
**Hidemitsu Uchisawa**, Tetsushi Naraoka, Junji Ichita and Hajime Matsue
- A-151 *NMR Analysis of Tetrasaccharides from Asparagus*  
**Eri Fukushi**, Shuich Onodera, Akira Yamamori, Norio Shiomi and Jun Kawabata
- A-153 *Conformational studies of human milk oligosaccharides using NMR residual dipolar couplings*  
**C. Allen Bush**, Manuel Martin-Pastor
- A-155 *New Lupane Triterpene Glycoside from *Scheffleropsis angkae**  
Vadim V. Kachala, **Aleksey S. Stolyarenko**, Vladimir I. Grishkovets, Aleksander S. Shashkov
- A-157 *New Triterpene Glycosides from the Stems of *Tetrapanax papyriferum**  
**Vsevolod S. Strigunov**, Vladimir I. Grishkovets, Alexander S. Shashkov, Vasiliy Ya. Chirva
- A-159 *Triterpene Glycosides from *Fatsia japonica* Fruits*  
**Evgeniy A. Sobolev**, Vladimir I. Grishkovets, Vasiliy Ya. Chirva, Alexander S. Shashkov





- A-161 *Characterization of immunomodulating polysaccharide fractions isolated from sage (Salvia officinalis L.) with and without ultrasound*  
**Anna Ebringerová**, Zdena Hromádková, Vera Hříbalová
- A-163 *Structural investigation of exopolysaccharides produced by different clinical isolates of Burkholderia cepacia*  
**Paola Cescutti**, Marco Bosco, Giuseppe Impallomeni, Silvia Skerlavaj, Jorge Leitão, João Richau, Isabel Sá-Correia, Paola Sist, Roberto Rizzo
- A-165 *Homology protein modeling of GnT V and ligand docking of natural substrates*  
**Tibor Kozar**, Mohan Rao, and Igor Tvaroska
- A-167 *A novel core oligosaccharide of Plesiomonas shigelloides devoid of phosphate residues.*  
**Tomasz Niedziela**, Jolanta Czaja, Wojciech Jachymek, Lennart Kenne and Czeslaw Lugowski
- A-169 *Characterization of glycoproteins on tumour cell membranes by Western blotting and Surface Enhanced Laser Desorption/ Ionization Mass Spectrometry.*  
**Renata A. Culak**, Philip L. Poole and Shawn Doonan
- A-171 *Copper (II) binding onto various pyranoid and furanoid sugars in aqueous solutions as revealed by electron-spin resonance (ESR) techniques*  
**Masaaki Ohara**, Hitomi Sasaki
- A-173 *3D Structure of oligosaccharides including N-acetylamino group*  
**Yasuko Ishizuka**, Kenji Kanazawa, Tadashi Nemoto and Hiroshi Nakanishi
- A-175 *Structural and conformational analysis of the capsular polysaccharide of Streptococcus pneumoniae type 1 after chemical depolymerisation*  
**Corné J.M. Stroop** and C. Allen Bush
- A-177 *The application of glycoproteins degradation with LiBH<sub>4</sub>/LiOH, leading to reduced O-glycopeptides, for structural analysis and localization of O-linked carbohydrate chains with the use of MALDI-MS*  
**Nikolay P. Arbatsky**, Leonid M. Likhosherstov, Vladimir N. Shibaev
- A-179 *Identification of glycoproteins in Mycobacterium avium*  
Regina Engel, Jordi Torrelles, **Bin Wang**, Patrick J. Brennan, Otto Holst
- A-181 *Conformational Investigation of Cytidine 5'-Monophosphate N-Acetylneuraminic Acid Using NMR Spectroscopy and Molecular Modelling*  
**Fengyang Yan**, Jean-Robert Brisson, James C. Richards, and Dennis M. Whitfield
- A-183 *Cellulase/Cellulose Interactions: Adsorption of cellulase components during the degradation of bacterial cellulose*  
**Yoshihiko Amano**, Kouichi Nozaki, Takahisa Kanda, R. Malcolm Brown Jr.
- A-185 *Mapping the Binding of Carbohydrates to mAb GSLA-2 with NMR and SPR*  
**Lars Herfurth**, Beat Ernst, John L. Magnani, and Thomas Peters,
- A-187 *Aldopentose pyranosyl ring puckering with MM3*  
**Michael K. Dowd**, William M. Rockey, Alfred D. French, and Peter J. Reilly
- A-189 *Structural studies of hyaluronic acid using atomic force microscopy*  
**Theresa Marie McIntire** and David A. Brant
- A-191 *Effect of sun-drying in pear cell wall polysaccharide extracts analysed by FT-IR*  
**Dulcinea Ferreira**, António Barros, Ivonne Delgadillo, Manuel A. Coimbra



- A-193 *Host-guest complex formation in cyclotriakis-(1®6)-[a-D-glucopyranosyl-(1®4)-b-D-glucopyranosyl]*  
Paola Cescutti, Jean-Pierre Utile and **Roberto Rizzo**
- A-195 *Outer Product analysis for the determination of the degree of methylesterification of pectins in cell wall material extracts*  
António Barros, **Isabel Mafra**, Ana Reis, Ivonne Delgadillo, Douglas N. Rutledge, Manuel A. Coimbra
- A-197 *The overlapping exo-anomeric effects in the THP-O-THP analog of the alpha-L-glucopyranosyl-alpha-D-glycopyranoside: a comparison with sucrose and trehalose*  
**Anne-Marie Kelterer**, Alfred D. French, Glenn P. Johnson
- A-199 *Identification of New Inhibitors for E-Selectin by STD-NMR*  
**Oliver Schuster** and Bernd Meyer
- A-201 *On the cryoprotective role of disaccharides: spectroscopic investigations.*  
C. Branca, **S. Magazù**, F. Migliardo, P. Migliardo
- A-203 *3D-Structure of MUC1 Glycopeptides and their Binding Mode with the Monoclonal Antibody SM3 by NMR Spectroscopy*  
J. Dojahn, **Heiko Möller**, C. Diotel, N. Sertas, H. Paulsen, J. Tayler-Papadimitriou and B. Meyer
- A-205 *Chemical structure of the glycosphingolipid isolated from the gram-negative bacterium, Sphingomonas sp. MK346*  
**Kazuyoshi Kawahara**, Akiko Nakagawa, Chikako Sakabe, Noriko Sato
- A-207 *Free reducing oligosaccharides of gum acacia (Acacia senegal): aids for determination of complex side-chain structures in its polysaccharide*  
Cesar A. Tischer, Marcello Iacomini, **Philip A.J. Gorin**
- A-209 *Conformational Analysis Strategies for Complex Carbohydrates Based on Molecular Dynamics Simulations: Free Energy Landscapes, Kinetics and Solvation of the Undecasaccharide SBA*  
**Martin Frank**, William E. Hull, Claus-W. von der Lieth,
- A-211 *Structure of the O-specific polysaccharide of the marine bacterium Pseudoalteromonas haloplanktis ssp. tetraodonis type strain IAM 14160T*  
**Jimmy Muldoon**, A.S. Shashkov, A.V. Perepelov, S.N. Senchenkova, R.P.Gorshkova, E.L. Nazarenko, V.A. Zubkov, E.P. Ivanova, Y.A. Knirel, A.Savage
- A-213 *Intensely coloured glycosyl-azopyrazolone derivatives as labels for the analysis of glycans released by hydrazinolysis.*  
**Warren Kett**, Michael Batley, John Redmond.
- A-215 *Structural features of the lipopolysaccharides from Pseudomonas (Burkholderia) caryophylli.*  
**Antonio Molinaro**, Rosa Lanzetta, A. Evidente, Otto Holst, Michelangelo Parrilli.
- A-217 *Probing the role of water in carbohydrate-protein interactions*  
Geert-Jan Boons, **Christopher Clarke**
- A-219 *Conformational Selection of Benzaldehyde Derivatives by Cyclodextrin Inclusion Process: a Raman Spectroscopic Study.*  
**Ana M. Amado** and Paulo J. A. Ribeiro-Claro
- A-221 *STD NMR Spectroscopy to Analyze Ligand Binding to a Human Mannose 6-Phosphate Transporter Protein for Lysosomal Enzymes*  
**Paul, E.**, Mayer, M., Bräulke, T., Meyer, B.



- B-101 *Enzymatic synthesis of biological active polysaccharides from laminaran and fucoidan*  
**Tatiana Zvyagintseva**, Nataliya Shevchenko, Tatiana Zaporozhets, Andrey Scobun, Irina Bakunina, Nataliya Besednova
- B-103 *Synthesis of analogues of 2'-azido-2'-deoxyuridine, known inhibitor of Ribonucleotide Diphosphate Reductase (RDPR).*  
**Mélanie Etheve-Quelquejeu**, Jean-Marc Valery
- B-105 *Conformational analysis of N-glycopeptides built up of  $\alpha$ -helical peptides and sugar residues corresponding to N-glycans' core-region.*  
**Kristina Münnich** and Christian Griesinger
- B-107 *Synthesis of oligosaccharide derivatives related to the O-antigen of Shigella dysenteriae type 3*  
Sujit Kumar Sarkar and **Nirmolendu Roy**
- B-109 *Short synthesis of 2-acetamido-4-amino-2,4,6-trideoxy-D-galactose and derivatives. Observations on S<sub>N</sub>2 Reactions at C-4 of 2-acetamido-<sup>14</sup>C-D-glucopyranoside derivatives*  
**Hong Liang** and T. Bruce Grindley
- B-113 *Chemical synthesis of substrates in the Leishmania biosynthetic pathways*  
Irina A. Ivanova, Andrew J. Ross, Yury E. Tsvetkov and **Andrei V. Nikolaev**
- B-115 *Synthesis of New Cyclitols Influencing the Enzymes of the Phosphatidylinositol Pathway*  
**István F. Pelyvás**, Zoltán G. Tóth, Gyula Batta, György Vereb, Ferenc Sztaricskai
- B-117 *Synthesis and conformational studies of unnatural pyrimidine nucleosides*  
**Ferenc Sztaricskai**, Andrea Csorvási, András Horváth, Gyula Batta and Zoltán Dinya
- B-119 *Synthesis of **b**-D-GalpNAc(4SO<sub>3</sub>)-(1@4)-L-IdopA(2SO<sub>3</sub>), a disaccharide fragment of dermatan sulfate, and of its methyl  $\alpha$ -L-glycoside derivative.*  
**Nadine Barroca** and Jean-Claude Jacquinet
- B-121 *Novel Type Of **b**-Lactams Containing Carbohydrates: Stepwise Construction Of Di- $\alpha$ -N-(2'-Azetidinone)-2-Azetidinone Having N-Sulfonamide Drugs Side Chain*  
Hammed H. A. M. Hassan and **Raafat Soliman**
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**Tohru Sakakibara**, Miki Eguchi, Narihiro Kanawa, Kiotaka Suzuki, Youhei Shiratuchi, and Yasuhiro Kajihara
- B-395 *Enzymatic synthesis of a tetravalent Core 2 sialyl Lewis x glycopeptide that inhibits lymphocyte adhesion to rat lymph node high endothelial venules*  
**Tero Satomaa**, Sanna Toppila, Olli Aitio, Jari Helin, Nisse Kalkkinen, Minna Ekström, Heidi Salminen, Suvi Toivonen, Arthur L. DeVries, Risto Renkonen, Ossi Renkonen
- B-397 *Synthesis of a rhamnosylated bisdesmosidic dihydrodiosgenin glucoside as mimetic of a naturally occurring anti-tumor active saponin*  
**René Suhr**, Martina Lahmann, Stefan Oscarson, Joachim Thiem
- B-399 *Polymer-Supported Solution Phase Synthesis of Oligosaccharides*  
**Dirk Schmidt**, Joachim Thiem



- B-401 *Enzymatic synthesis of Gal-**β**-(1→3)-GlcNAc derivatives utilising the **β**-galactosidase from bovine testes and the phosphorylase from *Bifidobacterium bifidum**  
**Erzsébet May**, Joachim Thiem
- B-403 *Chemoselective Glycosylation by Adjusting the Reactivity of the Anomeric Leaving Group*  
**Martina Lahmann**, Stefan Oscarson
- B-405 *C-Glycosyl Mimetics of 2-O-(**β**-D-Mannopyranosyl)-D-glucose*  
**Duy-Phong Pham-Huu**, Mária Petrušová, James N. BeMiller, Ladislav Petruš, Peter Köll, Jürgen Kopf
- B-407 *Synthesis of meso-Diaminopimelic acid containing N-Acetylmuramyl-Oligopeptides*  
**Niels Kubasch** and Richard R. Schmidt
- B-409 *A Simple Synthesis of C-Glycosyl Ketene Dithioacetal from Common Aldoses*  
**Yonas Gizaw**, D.-P. Pham-Huu, L. Petrus, J.N. BeMiller
- B-411 *Mitsunobu Thiofunctionalization of Methyl 2,3-O-isopropylidene-**β**-D-ribofuranoside*  
**Jitka Moravcová**, Alena Kapustová, Patrick Rollin
- B-413 *Solid-Phase Synthesis of Human Milk Oligosaccharides using O-Glycosyl Trichloroacetimidates.*  
**Fabien Roussel**, Laurent Knerr, Matthias Grathwohl and Richard R. Schmidt,
- B-415 *Polymer Supported Chemo-Enzymatic Synthesis of Chitooligosaccharides by Using a Hydrolase*  
**Masaya Fujita**, Yoshinori Misawa, Miki Hasegawa, and Shin-ichiro Shoda
- B-417 *Preparation of specifically labelled DNA for Solid State MAS NMR applications*  
**Niels Ouwkerk**, Jacques H. van Boom, Johan Lugtenburg, Jan Raap
- B-419 *Vinyloxy-alkoxides: A New Type of *d*-Reagents*  
P. Maier, H. Redlich, **Dörthe Vortmeyer**



- C-101 *Carbohydrate residues as prognostic markers in cutaneous malignant melanoma*  
**Anka Thies**, Ingrid Moll, Uwe Pfüller, Udo Schumacher
- C-103 *Anticoagulating activity from Persimmon stem*  
Yu Seon Sa, Choon-Soo Jeong, and **Hye-Seon Choi**
- C-105 *Bacterial polysaccharides as effective immunomodulators*  
**Lyudmila Varbanets**, Oksana Brovarkaya
- C-107 *Effects of N-glycosylation on the structure and the biological activities of eel calcitonin*  
**Mizuka Tagashira**, Hideki Iijima, Yukihiro Isogai, Masayuki Hori, Shinji Takamatsu, Yasuhisa Fujibayashi, Eiichi Yoshino, Katsuji Haneda, Toshiyuki Inazu, Kazunori Toma
- C-109 *Detection of high-mannose recognition protein in rat brain*  
**Masaaki Toyoda**, Susumu Hirabayashi, Masahiko Ikekita
- C-111 *Comparison of binding specificities to yeast cells of rabbit mannan binding protein, *S. marcescens* pili and plant lectins having affinity for mannose*  
**Yasuo Oda**, Katsuyoshi Nakayama, Shota Mori, Changlin Zhou, Mitsuhiro Kinoshita and Kazuaki Kakehi
- C-113 *Cloning of novel lipid glucosyltransferase genes and generation of knockout yeasts deficient in sterol glucoside and glucosylceramide*  
**Dirk Warnecke**, Martina Leipelt, Ulrich Zaehring, Frank Mueller, and Ernst Heinz
- C-115 *Stabilization of human recombinant erythropoietin through interactions with the highly branched N-glycans*  
**Haruki Yamaguchi**, Teruko Toyoda, Tomokazu Itai, Kenneth H. Aoki, Tsutomu Arakawa
- C-117 *Synthesis and biology of new neooligosaccharides that bind to Tar-RNA*  
Andreas Kirschning, **Guang-wu Chen**
- C-119 *Chemical and serological analysis on the core region of *Pseudomonas aeruginosa* lipopolysaccharide*  
**Patricia M. Sánchez Carballo**, Lore Brade, Paul Kosma, Ulrich Zähringer
- C-121 *A galacturonosyltransferase involved in the pectin synthesis*  
Yoshimi Takeuchi, **Yoichi Tsumuraya**
- C-123 *Lectinochemical studies on the combining sites of the Gal $\beta$ 1-specific galectin from chicken liver (CG-16)*  
**Albert M. Wu**, Ming-Sung Tsai, Herbert Kaltner and Hans-J. Gabius
- C-125 *The Interrelationships and Dependencies of Phytoglycogen and Starch Biosyntheses*  
**Stig R. Erlander**
- C-127 *A bacterial exopolysaccharide endowed with anticoagulant properties: a new potential anticoagulant drug.*  
**Sylvia Collic Jouault**, Lionel Chevolut, Andrée Bros, Corinne Siquin, Jacqueline Ratiskol, Anne-Marie Fischer and Jean Guezennec.
- C-129 *Ligand-binding properties of human annexin VI and its mutants*  
**Michiru Ida**, Reiko Ishitsuka, Kyoko Kojima-Aikawa, Hidekazu Takagi, Koji Kimata and Isamu Matsumoto



- C-131 *Enzymatic formation of GDP-D-Rhamnose as a key precursor for lipopolysaccharides of human and plant pathogenic pseudomonads*  
**Michael Ramm**, Matthias Hamburger
- C-133 *Design and Synthesis of Ganglioside GM1 Mimics*  
**Anna Bernardi**, Giorgio Colombo, Leonardo Manzoni, Sandro Sonnino, Donatella Potenza
- C-135 *Characterization of murine monoclonal antibodies specific for the O-antigenic determinants of Helicobacter pylori lipopolysaccharide*  
**Eleonora Altman**, Blair A. Harrison, Tomoko Hiramata and Roger MacKenzie
- C-137 *Recognition of lipopolysaccharide receptor by spike G protein of bacteriophage  $\phi$ X174*  
**Tomoko Kawaura**, Minoru Inagaki, Shuichi Karita, Akiyoshi Tanaka, Shiro Nishikawa, and Naoki Kashimura
- C-139 *Analysis of gene expression in response to N-acetylchitooligosaccharide elicitors in suspension-cultured rice cells.*  
**Eiichi Minami**, Dao-Yao He, Yoshiaki Yazaki, Katsuhiko Sakano, Ryouta Takai, Yoko Nishizawa, Hanae Kaku, Kosumi Yamada and Naoto Shibuya
- C-141 *Synthesis of biotinyl photoprobes containing Globo-N-tetraose and a Lewis-hexasaccharide*  
**Jari Natunen**, Petra Johansson, Hasse Karlsson, Jonas Ångström, Yasumaru Hatanaka, and Karl-Anders Karlsson
- C-143 *Cloning of the gene for N-acetylglucosamine 2-epimerase from Synechocystis sp.*  
**Satoshi Koizumi**, Kazuhiko Tabata, Tetsuo Endo, Akio Ozaki
- C-145 *The Detection and Characterisation of Alpha-1-acid glycoprotein (AGP) in Sputum*  
**Rachel Bruce**, John McGuire, John Watson, Robin Stevenson and Kevin D. Smith
- C-147 *Purification and characterization of human UDP-D-xylose: proteoglycan core protein b-D-xylosyltransferase from JAR choriocarcinoma*  
**Joachim Kuhn**, Christian Götting, Thomas Brinkmann, Knut Kleesiek
- C-149 *Modulation of substrate binding mode by mutation of Met298 and Cys95 in barley  $\alpha$ -amylase*  
**Mori H**, Bak-Jensen KS, Gottschalk TE, Jensen MT, Kramhøft B, Svensson B
- C-151 *The Use of Novel Selection and Evolution Methods to Develop Cellular Models for Human Disease Related to Defects in Sialic Acid Metabolism*  
**Kevin J. Yarema**, Scarlett Goon, Carolyn R. Bertozzi
- C-153 *Glycolipid-modified peptides: enhancement of absorption of an anti-tumour somatostatin analogue*  
**John P. Malkinson**, Lucia Lazorova, Per Artursson, György Keri, Istvan Toth
- C-155 *Heparin trisaccharide sequences separated by flexible nonsulfated residues prevent dimerization of Fibroblast Growth Factor-2 and inhibit angiogenesis*  
B. Casu, M. Guerrini, **A. Naggi**, M. Perez, G. Torri, D. Ribatti, P. Carminati, G. Giannini, S. Penco, C. Pisano, M. Rusnati, and M. Presta.
- C-157 *Digestibility of Honeydew Honeys and Identification of Resistant Oligosaccharides*  
Dierk Martin, Manfred Vogel, Willi Kundel, **Frank Rittig**, Sylvia Uhl, Petra Vogt
- C-159 *Structure and immunospecificity of the O-acetylated acidic O-specific polysaccharide of Proteus vulgaris O46*  
**Agnieszka Torzewska**, Antoni Rózalski, Andrei V. Perepelov, Sof'ya N. Senchenkova, Aleksander S. Shashkov, Yuriy A. Knirel



- C-161 *Isolation and characterization of a-galactosidase from the thermophilic fungus Thermomyces lanuginosus*  
Vladimír Puchart, **Mária Vršanská**, Mahalingeshwara K. Bhat, Peter Biely
- C-163 *Preparation and characterization of adipic acid dihydrazide derivatives of glucans as matrixes for bioconjugates*  
**Slavomír Bystrický**, Eva Machová and Grigorij Kogan
- C-165 *Characterization and Alternate Splicing of Mucin (MUC) Genes in Female Reproductive Tissues and Carcinomas*  
**Goverdhan P. Sachdev** and Vidya Hebbar
- C-167 *Fluorinated  $\beta$ -1,4-Galactan Sulfate (LuPSFS1) as Angiogenesis Inhibitor*  
**Dietrich H. Paper**, Jutta Bürgermeister, Horst Vogl and Gerhard Franz
- C-169 *Recombinant expression of HE5/CD52, a major component of the human sperm glycocalyx*  
**Olaf Nagel**, Sabine Schröter, Christiane Kirchhoff
- C-171 *Antimicrobial antibiotic from grey series of Streptomyces sp., taxonomy, fermentation, isolation and biological activities against some soil borne diseases*  
Ali, Amal M. and **Amany L Kansoh**
- C-173 *Structure-function relationships of glucooligosaccharide elicitor that can induce defense responses in rice cells*  
Takeshi Yamaguchi, Yumiko Maehara, Osamu Kodama, Takashi Takahashi, Hiroshi Tanaka, Toru Amaya, **Naoto Shibuya**
- C-175 *Influence of the chemical structure of bacterial glycolipids on the formation of lytic complement pores*  
**A. Wiese**, P. Grünewald, and U.Seydel
- C-177 *Chemical Analysis of the Developmental Pattern of Polysialylation in Chicken Brain*  
**Sadako Inoue**, Vivian Wei-Chung Yang, Shu-Ling Lin, and Yasuo Inoue
- C-179 *Structural Studies of Peptide-Carbohydrate Mimicry in Antibody-Ligand Systems*  
**Margaret A. Johnson**, B. M. Pinto
- C-181 *Separation and characterization of b-galactosidase from Jack fruit ( Artocarpus integrifolis)*  
**El-Tanboly E.E.** Azza A.Ismail and M.A.El-Hofii.
- C-183 *Study of carbohydrate specificity of disease specific antibodies (IgM) induced in childhood Acute Lymphoblastic Leukemia (ALL) using various sialic acid analogues*  
**Chitra Mandal**, Santanu Pal, Brossmer Reinhard, Rainer Isecke, Petra Ihrig
- C-185 *A facile chemical synthesis of useful sialic acid analogues without protection and deprotection procedures*  
**Reinhard Brossmer**, Rainer Isecke, Michael Sommer, Ruth Kunze, Petra Ihrig, Jutta Müller
- C-187 *A Sialidase from Horse Liver was co-purified with b-Galactosidase and Carboxypeptidase A*  
**Krishna Purnawan Candra**, Peter Roggentin, Lee Shaw and Roland Schauer
- C-189 *Purification and characterisation of the recombinant sialate pyruvate-lyase from pig kidney*  
**Andrea Wächter**, Christina Traving and Roland Schauer
- C-191 *Cloning and expression of the cDNA encoding CMP-N-acetylneuraminic acid hydroxylase from the starfish Asterias rubens*  
**Ilka Martensen**, Marcus Gollub, Roland Schauer and Lee Shaw



- C-193 *Purification and characterisation of the CMP-N-acetylneuraminic acid hydroxylase from the starfish Asterias rubens*  
Marcus Gollub, Roland Schauer and **Lee Shaw**
- C-195 *Enzymatic modification of N-glycans attached to RNase B for conformational studies with NMR*  
Christian Plath and **Thomas Peters**
- C-197 *Comparative Functional Characterization in vitro of Heptosyltransferase I (WaaC) and II (WaaF) from E. coli*  
**Sabine Gronow**, Werner Brabetz, Helmut Brade
- C-199 *L-Galactosyl and L-Fucosyltransferase Activity in Albumen Glands of Snails from the Family Helicidae*  
M. Morita, **A. Scheppokat**, L. Bornaghi, J. Thiem and H. Bretting
- C-201 *Granulocyte polyglycosylceramides are potential E-selectin ligands*  
**R. Lümen**, A. Werner, D. Vestweber, J. Müthing
- C-203 *YEA4 gene encodes an UDP-GlcNAc transporter in Saccharomyces cerevisiae required for chitin synthesis.*  
**Samir Kumar Roy**, Yasunori Chiba, Makoto Takeuchi and Yoshifumi Jigami.
- C-205 *Inositol phosphate binding to Inositol-1,4,5-trisphosphate-3-kinase: investigation by mutagenesis studies and Saturation Transfer Difference NMR spectroscopy*  
**C. Deschermeier**, M. Mayer, H. Möller and G.W. Mayr, B. Meyer
- C-207 *How is the Highly-Branched Polysaccharide Galactan Formed in the Albumen Glands of Snails?*  
Holger Lüttge, K. Stangier, Lars Kröger, Angela Scheppokat, Minoru Morita, Joachim Thiem and **Hagen Bretting**





- D-101 *Evaluation of Various GlycoWell™ Plates Signal-to-Noise Evaluations and Inhibition Experiments*  
Bengt Magnusson, **Ulf Wellmar**, Göran Magnusson and Ulf J. Nilsson
- D-103 *Effect of recovery method and condition on the characteristics of regenerated chitosan*  
**Rong Huei Chen** and Chang Shu Liu
- D-105 *Carboxymethyl  $\alpha$ -D-glucopyranoside: preparation by hydrogen peroxide oxidation of palatinose and synthetic use towards glucosylated esters and amides.*  
Stéphane Trombotto, Alain Bouchu, **Gérard Descotes**, Yves Queneau
- D-107 *The Production of Polysialic Acid by Fermentation*  
**Xiaobei Zhan**, Li Zhu, Zhiyong Zhen, Wei Jia, Jianrong Wu
- D-109 *Sonolysis of Crawfish Chitosan: A Size Exclusion Chromatography Analysis*  
**F. Iglesias-Guerra**, J.M. Vega-Pérez, M. Jover, and J. Bautista
- D-111 *Regulation of poly-N-acetyllactosamine formation in N-glycans of CHO cell-produced human interferon- $\gamma$*   
**Kazuhiro Fukuta**, Reiko Abe, Tomoko Yokomatsu, Mineko Asanagi and Tadashi Makino
- D-113 *Gums Obtained from Bagasse and Filter Cake Mud with Alakline Hydrogen Peroxide*  
**Mary An Godshall**, Earl J. Roberts and Ron Triche
- D-115 *Optimization of vinyl sugar synthesis catalyzed by protease*  
**Kitagawa Masaru**, Raku Takao, Fan Hong, Tokiwa Yutaka
- D-117 *Regioselective synthesis of uridine-branched polymer catalyzed by enzymes*  
**Y. Tokiwa**, H. Fan, T. Raku, M. Kitagawa
- D-119 *Cellulose Nanocrystals: Sticks to Strengthen Polymer Matrices*  
**William T. Winter**, Maren Grunert, Deepanjan Bhattacharya, Shengbin Zhang, Arthur J. Stipanovic
- D-121 *Ferulates and diferulates as cross-links between polysaccharides and lignin in wild rice dietary fiber*  
**Mirko Bunzel**, Ella Allerdings, John Ralph, Hans Steinhart
- D-123 *Preparation of immobilized  $\beta$ -D-galactosidase by use of polysiloxanes and porous glass as carrier materials.*  
**Katrin Hensen**, Peter Grunwald
- D-125 *An NMR spectroscopic investigation of the Xylan from Nothogenia erinaceae and the products of its enzymic degradation*  
**Haralambos Parolis**, Lesley Parolis, Patricia Ntarima, Marc Claeysens, Anders Broberg, Jens Duus
- D-127 *Evaluation of Biscuits Produced from Some Experimental Recipes*  
**S.M. Abd El Hady**, R.M. El Saadany, H.Khalf and M.T. Ramadan
- D-129 *Isolation and characterization of chitosan from Aspergillus niger mycelial wastes of citric acid production*  
Lubos Adamek, **Milos Beran**, Petr Molik
- D-131 *Synthesis of Oligosaccharides by Aid of Membrane Techniques*  
**N. Brinkmann**, E. G. Berger, L. Elling, U. Kragl, A. Liese, M. Malissard, M. Ramuz, T. Schumacher, C. Wandrey



- D-133 *A New Look at Carbohydrates as Organic Raw Materials : A key methodology leading to simple processes for the conversion of carbohydrates into building blocks*  
**Kiyohiko Tajima**
- D-135 *Molecular dynamics calculations on amylose fragments. I. Glass transition temperatures of maltodecaose at 1%, 5%, 10%, and 15.8% hydration.*  
**Frank A. Momany** and J. L. Willett
- D-137 *Kinetics and Mechanism of Oxidation Of Amylose by Permanganate Ion in Alkaline Solutions*  
**Gamal Abdel-Wahab Ahmed**
- D-139 *O to C-Glycoside Rearrangement to **b**-C-Aryl Glycosides: A Novel Approach to Carbohydrate Based Liquid Crystals*  
Sven Gerber, **Gunnar Gesekus** , Oliver Konrad, Volkmar Vill and Matthias Wulf
- D-141 *Synthesis and biophysical properties of glyco-glycero conjugates*  
**Götz Milkereit**, H. M. von Minden, M. Morr, V. Vill
- D-143 *Carbohydrates as starting materials for cholesteric liquid crystals, colors and reflectors*  
**M. Paul**, G. Gesekus, V. Vill, R. Parker, K. Kürschner, F. Prechtel, F. Meyer

**Poster Session II****14:00 Thursday, August 31**

- A-100 *Physicochemical analysis of lipid A fractions of lipopolysaccharide from Erwinia carotovora in relation to bioactivity*  
**Satoshi Fukuoka**, Klaus Brandenburg, Mareike Müller, Buko Lindner, Michel H. J. Koch, and Ulrich Seydel
- A-102 *Structure of the O-specific polysaccharide of Proteus mirabilis O41 containing one ribitol phosphate and two ethanolamine phosphate groups*  
**Sof'ya N. Senchenkova**, Andrei V. Perepelov, Alexander S. Shashkov, Yuriy A. Knirel, Maciej Cedzynski, Anna S. Swierczko, Andrzej Ziolkowski, Wieslaw Kaca, Per-Erik Jansson
- A-104 *Structure of the highly phosphorylated carbohydrate backbone of the lipopolysaccharide of Pseudomonas aeruginosa rough strain 2192*  
Yuriy A. Knirel, Alexander S. Shashkov, Nina A. Kocharova, **Ol'ga V. Bystrova**, Sof'ya N. Senchenkova, Hermann Moll, Buko Lindner, Ulrich Zähringer, Gerald B. Pier
- A-106 *Structure of the O-specific polysaccharide of Proteus myxofaciens*  
**Anna N. Kondakova**, Alexander S. Shashkov, Sof'ya N. Senchenkova, Yuriy A. Knirel, Krystyna Zych, Zygmunt Sidorczyk
- A-108 *Structures of the O-specific polysaccharides of two non-classified strains of Proteus mirabilis*  
**Filip V. Toukach**, Nikolay P. Arbatsky, Alexander S. Shashkov, Yuriy A. Knirel, Krystyna Zych, Zygmunt Sidorczyk
- A-110 *C CP/MAS NMR spectroscopy in structural analysis of pectins*  
**Andriy Synytsya**, Jana Copiková and Jirí Brus
- A-112 *The O-specific polysaccharide of the marine bacterium "Alteromonas marinoglutinosa" NCIMB 1770*  
**Nadezhda Komandrova**, Svetlana Tomshich, Vladimir Isakov, Lyudmila Romanenko
- A-114 *Reversible order-disorder transitions of xanthan in water-cadoxen solutions*  
Yevlampieva N. P., and **Pavlov G. M.**
- A-116 *Molecular properties of hydroxypropylmethylcellulose in solution and in films*  
**N. A. Michailova**, A. E. Grishchenko, M. Puaud, S. Hill, J. Mitchell, and G. M. Pavlov
- A-118 *Structure of the O polysaccharide of Pseudomonas syringae pv. delphinii ICMP 529 (NCPBB 1879<sup>T</sup>)*  
Vladimir Ovod, Evelina L. Zdorovenko, George V. Zatonsky, Nina A. Kocharova, Alexander S. Shashkov, **Yuriy A. Knirel**
- A-120 *Conformational analysis of neocarrabiose and its sulfated and/or pyruvylated derivatives using the MM3 force-field*  
**Carlos A. Stortz**, Alberto S.Cerezo
- A-122 *Elucidation of the Structure of the O-Specific Polysaccharide of Proteus vulgaris O39 Using NMR Spectroscopy and Triflic Acid Solvolysis*  
**Alexander S. Shashkov**, Anna N. Kondakova, Andrei V. Perepelov, Sof'ya N. Senchenkova, Yuriy A. Knirel, Beata Bartodziejska, Marianna Wykrota, Antoni Rozalski
- A-124 *Chemical Modification of Pectin and Analysis of the Products by H-NMR Spectroscopy*  
**Christoph Rosenbohm**, and Inge Lundt



- A-126 *Acid-catalyzed Hydrolysis and Lactonization of  $\alpha$ 2 8-Linked Oligosialic Acids*  
**Shih-Hsiung Wu**, Yi-Ping Yu, Mou-Chi Cheng, Heng-Ru Lin, Yow-Fu Tsai, Chun-Hung Lin
- A-128 *A new method for revealing of neokestose fragment in glucofructans of unusual neokestose type*  
**Vakhtang Barbakadze**, Eteri Kemertelidze, Iraida Targamadze, Anatoly Usov
- A-130 *(1 @4)-Linked **b**-xylan and amylose produced by the phycobiont isolated from the lichenized fungus *Ramalina celastri**  
Lucimara M. Cordeiro, Julio C. Ferreira; Philip A.J. Gorin, **Marcello Iacomini**
- A-132 *Studies on relationships between 3-dimensional structure and bioactivity of lipid A analogues*  
**Masato Oikawa**, Koichi Fukase, Yasuo Suda, Shoichi Kusumoto
- A-134 *Conformational analysis of a tetrasaccharide using residual dipolar couplings in dilute liquid crystalline media*  
**Clas Landersjö**, Christer Höög, Arnold Maliniak and Göran Widmalm
- A-136 *Capillary electrophoresis of  $\alpha$ 1-acid glycoprotein and its clinical application*  
Mitsuhiro Kinoshita, Daisuke Kawakami, Yasuo Oda and **Kazuaki Kakehi**
- A-138 *An extended carbohydrate binding site of galectin-3 explored by NMR and MD*  
**Kimiko Umemoto** and Hakon Leffler
- A-140 *Structure Investigations of Micellar Solutions of Glycolipids*  
**R. Willumeit**, V. Haramus, M. von Minden, V. Vill
- A-142 *Synthesis of CMP - deoxy - NeuAc derivatives and its activity toward sialyltransferase*  
Yasuhiro Kajihara, **Daisuke Kamiyama**, Tatsuo Miyazaki and Tohru Sakakibara
- A-144 *Homology and heterogeneity of milk oligosaccharides among three species of bear*  
**Tadasu Urashima**, Tadashi Nakamura, Tadao Saito, Naoko Maeda, Takeshi Komatsu, Toshio Tsubota, Andrew Derocher, Oystein Wiig
- A-146 *Unique Properties of Multiple Galectins of the Nematode *Caenorhabditis elegans*.*  
Jun Hirabayashi, Ko Hayama, **Ken-ichi Kasai**
- A-148 *Structure of a viscous exopolysaccharide produced by *Lactobacillus helveticus* K16*  
Zhennai Yang, Mikael Staaf, **Eine Huttunen**, Göran Widmalm
- A-150 *Purification, characterization and cDNA cloning of alpha-galactosidase from rice*  
Osamu Kobayashi, Satoshi Kaneko, **Hideyuki Kobayashi**, Yoshikiyo Sakakibara, Isao Kusakabe
- A-152 *Characterisation of the substrate specificity of an arabinoxylan arabinofuranohydrolase from barley malt by nano-probe NMR.*  
Anders Broberg, Henrik Ferré, Karl Kristian Thomsen, **Jens Ø. Duus**
- A-154 *Effect of cellulose crystallinity and protein adsorption on the cellulose surface properties measured by Inverse Gas Chromatography*  
Bastos, H., Mota, M., **Gama, F.M.**
- A-156 *New Noroleanane Triterpene Glycosides from *Pseudopanax crassifolius**  
**Vladimir I. Grishkovets**, Vadim V. Kachala, Denis Yu. Murin, Nikolai N. Arnautov, Aleksander S. Shashkov, Illarion I. Dovgiy
- A-158 *Minor and Predominant Triterpene Glycosides from the Roots of *Hedera canariensis**  
**Leonid A. Yakovishin**, Vladimir I. Grishkovets, Alexander S. Shashkov, Svetlana Iksanova, Vasiliy Ya. Chirva



- A-160 *Structure and activity of a (4-O-methyl- $\alpha$ -D-glucurono)-D-xylan from Mahonia aquifolium (Pursh) Nutt.*  
**Alžbeta Kardošová**, Anna Malovíková, Gabriela Nosálová, Sona Franová
- A-162 *Structural studies of the O-specific polysaccharide of Vibrio cholerae O8 using solvolysis with triflic acid*  
**Per-Erik Jansson**, Nina A. Kocharova, Andrei V. Perepelov, George V. Zatonsky, Alexander S. Shashkov, Yuriy A. Knirel, Andrej Weintraub
- A-164 *Agonistic and 'antagonistic' properties of hepta-acyl lipid A isolated from the LPS of Salmonella enterica sv. Minnesota rough mutant strain R595*  
**Holger Janusch**, Buko Lindner, Artur J. Ulmer, Ulrich Zähringer
- A-166 *NMR Study on the Interaction Between Nucleosides and Saccharides*  
**Corine Sandström**, Ianric Ivarsson, Somer Bekiroglu, Lennart Kenne
- A-168 *Synthesis and conformational studies by NMR of oligomers containing sugar amino acids*  
**Elsa Locardi**, Matthias Stöckle, Sibylle Gruner, Horst Kessler
- A-170 *Isolation and characterisation of  $\alpha$ -(1 $\rightarrow$ 3)-D-glucan from model yeast Schizosaccharomyces pombe*  
**Christian H. Grün**, Frans Hochstenbach, Frans M. Klis, Johannis P. Kamerling, Johannes F.G. Vliegthart
- A-172 *Analysis of unusual Conformations of 1,3,5,7-cis-Tetraoxadecalin Systems*  
**Felix Zabka**, Peter Köll
- A-174 *Comparison of the Conformation and dynamics of a polysaccharide its isolated heptasaccharide repeating unit on the basis of NOE, long range C-C and C-H coupling constants and NMR relaxation data*  
**Manuel Martin-Pastor**, C. Allen Bush
- A-176 *Flexible non-glucose cyclooligosaccharides: cycloaltrins and per-2,3-anhydro- $\alpha$ -cyclomannin*  
**Stefan Immel**
- A-178 *Structural analysis of the lipid A from Yersinia enterocolitica Serotype O:8*  
Clemens Oertelt, Buko Lindner, Mikael Skurnik, **Otto Holst**
- A-180 *ADP-L-Glycero- $\beta$ -D-manno-heptose is the physiological substrate for heptosyltransferases I and II during LPS core biosynthesis*  
**Clemens Oertelt**, Sabine Gronow, Alla Zamyatina, Paul Kosma, Helmut Brade, Otto Holst
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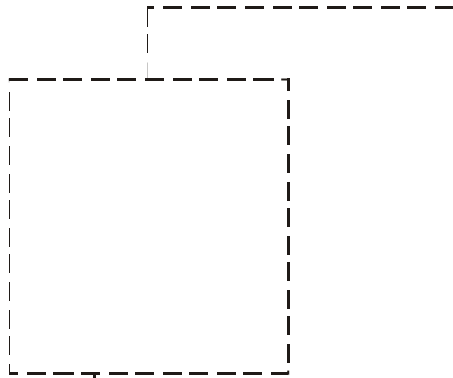


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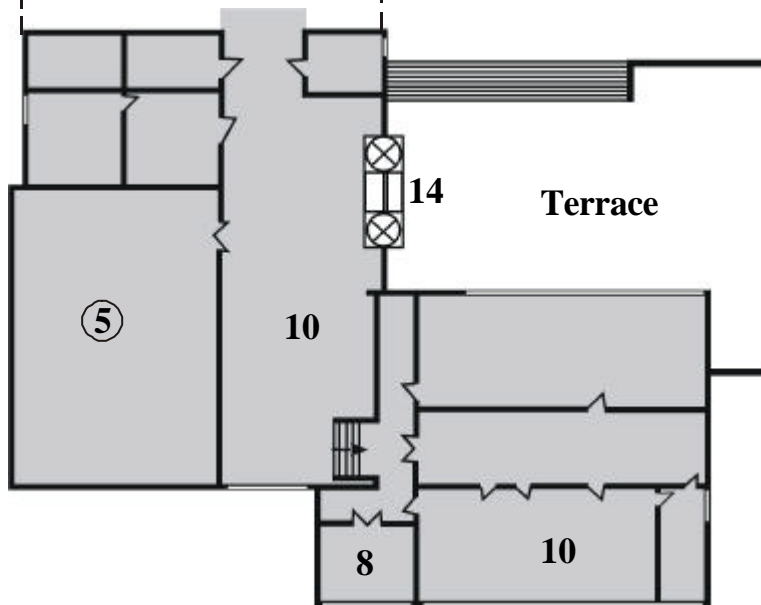


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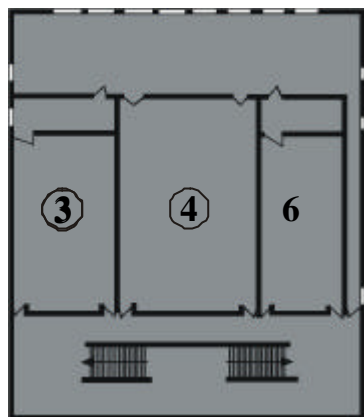


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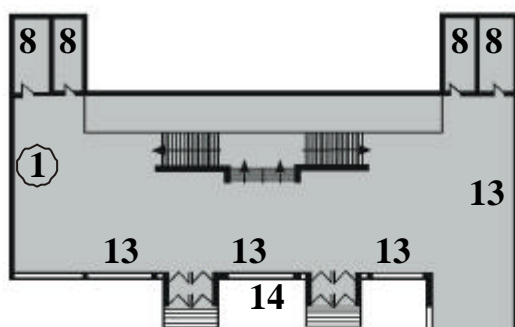




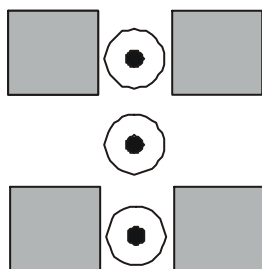
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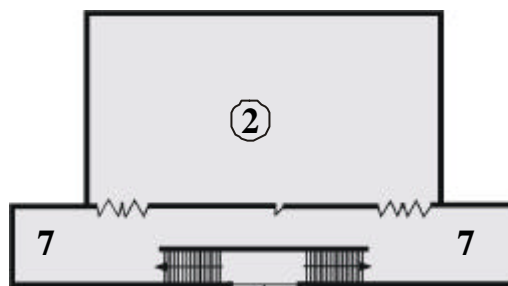
GROUND LEVEL



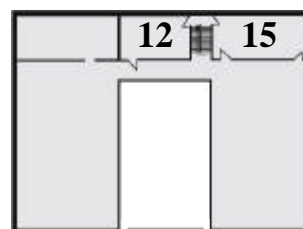
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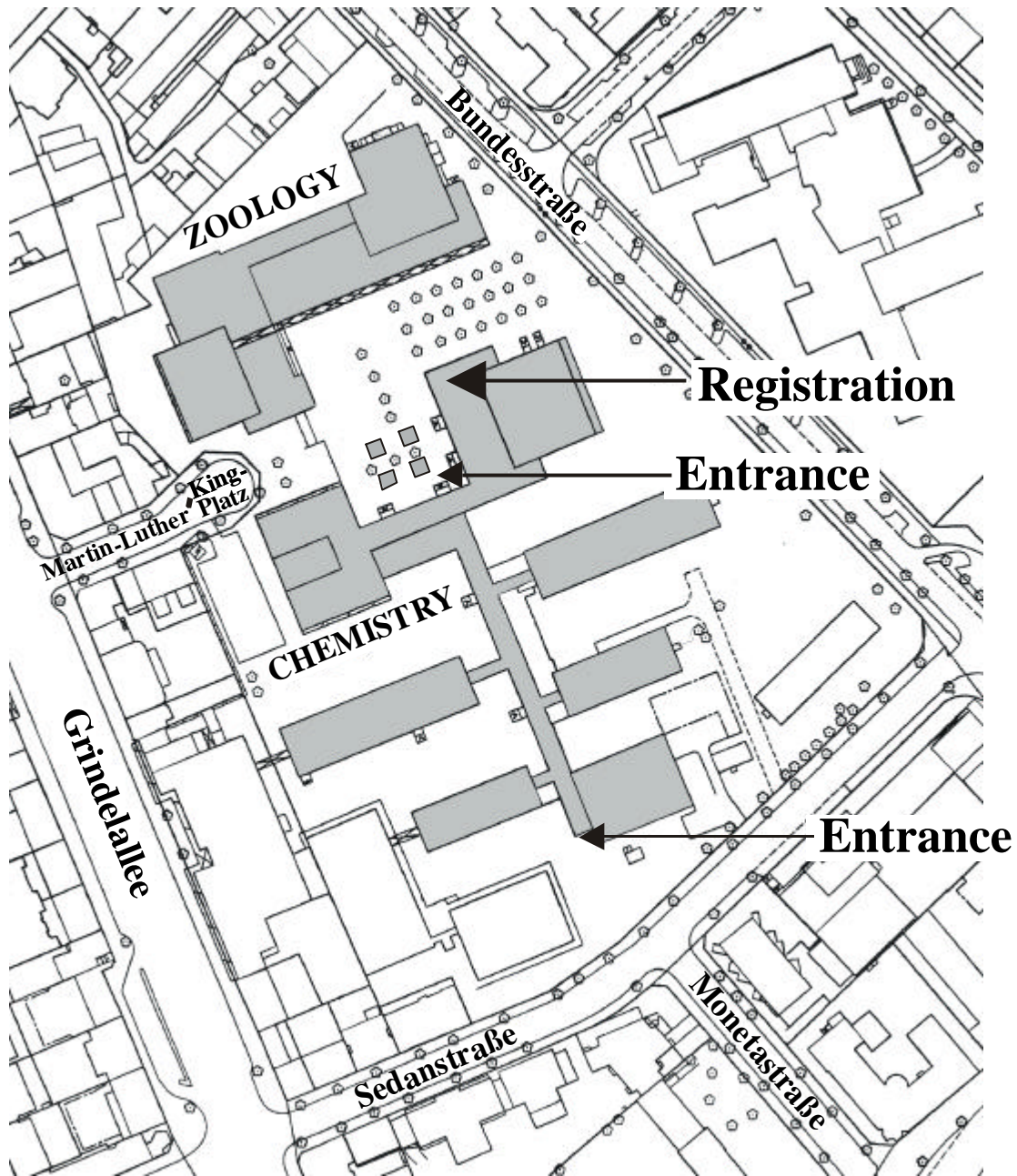


UPPER LEVEL



UPPER LEVEL





**SYMPOSIUM VENUE**  
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