Second Circular

II International Conference
VIBRATIONAL SPECTROSCOPY IN MATERIALS SCIENCE

organized by

Department of Materials Science and Ceramics
University of Mining and Metallurgy

Faculty of Chemistry University of Wroclaw

Regional Laboratory of Physicochemical Analyses and Structural Research
Jagiellonian University

Ceramic Committee of the Polish Academy of Sciences

Polish Ceramic Society

2225 October 1998
PolandKrakow

****

International Advisory Committee

Sir Harold W. Kroto (Sussex)
Nobel Laureate in chemistry 1996
Honorary President

A. Mller (Bielefeld) - *President*
G. Puchovkaya (Kiev) - *Vice-President*
A. J. Barnes (Salford), S. Bratos (Paris),
M. Handke (Krakow), N. Kirov (Sofia), H. D. Lutz (Siegen), M. May (Paris),
C. N. R. Rao (Bangalore), H. Ratajczak (Wroclaw), M. W. Urban (Fargo),
J. van der Mass (Utrecht), R. G. Zhbankov (Minsk), J. Zyss (Bangneux), S. Xi (Changchum)

Local Scientific Committee

M. Handke (Krakow) - *Chairman,*
H. Ratajczak (Wroclaw) - *Vice-Chairman,*
J. Baran (Wroclaw), A. Graja (Poznan), A. Kielski (Krakow), S. Komornicki (Krakow), W. Kurdowski (Krakow),
L. Proniewicz (Krakow), W. Ptak (Krakow), L. Stoch (Krakow), W. Wojciechowski (Wroclaw)

Organizing Committee

C. Paluszkiewicz - *secretary* (Krakow),
M. Hasik (Krakow), W. Jastrzebski (Krakow), Z. Mielke (Wroclaw),

W. Mozgawa (Krakow), G. Pawlikowska (Krakow), A. Weselucha-Birczynska (Krakow),

Scope

Vibrational spectroscopy in studies of solid materials provides structural information, particularly on short range ordering as well as on the nature of chemical bonding. Materials science deals with solids of practical importance. Therefore solid state vibrational spectroscopy is particularly useful for the solution of the problems encountered in materials science. It should be noted here that applied problems are slightly different from the ones of basic research.
The main goal of the conference is to highlight the special problems encountered in materials science that can be solved using solid state vibrational spectroscopy. The methodology of spectra interpretation is significantly different in the studies of inorganic materials from that for molecular compounds. Therefore during the conference these two groups of materials will be dealt with separately.
In the studies of various materials quite frequently the sample cannot be adjusted to the measurement, on the contrary, the measurement has to be adjusted to the sample. Therefore application of different measuring techniques is so important. These topics will be considered during a separate conference session.

Topics of the Conference

1. *Vibrational spectroscopy of ceramic materials:* glassy state; bioceramics; anisodesmic crystals; materials for electronics; semiconductors, superconductors.
2. *Vibrational spectroscopy of polymers:* constructional polymers; polymer-ceramic material composites; conductive polymers.
3. *Vibrational spectroscopy of molecular materials:* ferroelectrics; crystals for nonlinear optics; liquid crystals; phase transitions.
4. *Experimental techniques of vibrational spectroscopy:* transmission; photoacoustic; reflection; microscopy; emission.

Contributions

Contributions may take place as plenary lectures or poster presentations. Invited talks will be selected from recommendations of the International Committee.

Conference Language

Official language of the Conference will be English

Proceedings

Selected contributions will be published in the Journal of Molecular Structure

Address of the Organizing Committee

Department of Materials Science and Ceramics
University of Mining and Metallurgy
30-059 Kraków, Al. Mickiewicza 30
Phones: (48-12) 6172487, (48-12) 6172530,
Fax: (48-12) 6331593,
Fax: (48-12) 6337161,
e-mail: vibspec@uci. agh. edu. pl

Conference fee: US $ 150 (500 PLZ) includes the abstracts book, 3 lunches, tea and coffee during the

conference breaks and Welcome Party. Please note that the conference fee does not cover accomodation or travel costs.

Payment

Payment should be made to the conference account No:
BPH IV OM Kraków
10601389-1049-27000-400101/720160883
before 31 Agust 1998. Please do not forget to indicate your name as beneficiary.
We regret that we CANNOT ACCEPT ANY CREDIT CARD.

GENERAL INFORMATION

Introduction

Kraków will host the conference Vibrational Spectroscopy in Materials Science. This is one of the oldest Polish towns, full of historical monuments, visited each year by thousands of tourists from different countries of the world. They come to see the old Kings castle on Wawel hill as well as the charmful places in the historical centre of the town. There are also places of interest in the close vicinities of Krakow, such as the unique, oldest in the world Salt Mine in Wieliczka.
The conference will take place at the University of Mining and Metallurgy (AGH), one of the largest technical universities in Poland. It was founded in 1919, i. e. next year it will celebrate its 80th anniversary of foundation. It is situated close to the historical centre of Krakow.

Visas

Participants from most European and many non-European countries do not need Polish visas but are advised to confirm this before departure. Other participants can obtain their visas from the nearest Polish Embassy or Consulate upon showing a personal invitation letter. A letter of invitation will be provided by the Organizing Committee upon request.

Currency

Polish monetary unit is zloty (PLN, zl). 1 zloty = 100 groszy (gr). Coins are: 1, 2, 5, 10, 20, 50 gr, and 1, 2, 5 zl. There are also 10, 20, 50, 100 and 200 bank notes. The exchange rate is approximately 3.5 PLN (zl) for 1 USD. Foreign currency can be exchanged in the banks and in many small exchange offices located in different places of the town. International credit cards (VISA, Mastercard, Eurocard) are accepted in some shops downtown and can be used for cash withdrawals at banks and some banking machines (Bankomat).

Insurance

The Organizing Committee cannot accept any liability for medical or other problems. Participants should make their own arrangements with respect to health and other insurance.

Weather

Even though generally October in Poland is a nice month with plenty of sunshine, rains and cold weather may happen. Therefore umbrellas may be useful. Usually the temperature at this time of the year is below 10 0C.

Transport

Kraków can be reached by plane or train. Kraków airport has connections to some places in Europe. There are also express trains that between Warsaw and Kraków approximately every 2 hours. It takes 2 hours 30 minutes to go from Warsaw to Kraków by such train.

University of Mining and Metallurgy (AGH) can be reached easily from the Krakow railway station (buses No 119, 179, 208) and from the Kraków airport (bus No 208).

Please note that while using public transport special tickets should be validated by one of the vending machines placed inside the vehicle. Public transport tickets (the same for buses and trams) can be purchased at most of the newspapers stands as well as from the bus, tram driver (at some additional cost). There are several types of tickets:
1.20 zl fare for a single trip
1.50 zl fare for a 60 minute trip
In Krakow there are also express buses (A, B, C...). The fare for a single trip by such bus is 1.80 zl.
A taxi fare from the railway station to the conference place should be about 10 - 15 zl and from the airport about 25 zl.

Telephones

Phone cards (for 25, 50 and 100 units) as well as special tokens (A and C) are available at Post offices and most newspaper stands throughout Kraków. A telephone unit (about 3 minutes of local call) costs 23 gr. Most telephone boxes can be used for local as well as long distance calls. A long distance dial number consists of: 00 - contry code - area code - local number.
The emergency telephone numbers are as follows:
Ambulance: 999
Fire brigade: 998
Police (state): 997

CONFERENCE INFORMATION

The Venue

The conference will be held in the A0 and A4 buildings of the University of Mining and Metallurgy in Kraków, whose address is: Al. Mickiewicza 30. The Conference will start on Thusday, October 22 at 2 p.m. in the main hall of the A0 building (Aula).

Registration

Registration desk will be located close to the lecture halls. Its exact locations and opening hours are as follows:
Thursday, October 22 - A0 building, 9 a.m. - 6 p.m.
Friday, October 23 - A4 building, 8.30 a.m. - 6 p.m.
Saturday, October 24 - A4 building, 9 a.m. - 2 p.m. and A0 building, 2 p.m.-6 p.m.
Sunday, October 25 - A4 building, 9 a.m. - 2 p.m.

Coffee breaks and lunches

Coffee, tea and sweets will be available during the conference breaks. Three lunches (on Friday, October 23; Saturday, October 24 and Sunday, October 25) will be served in the student cafeteria Krakus located close to the conference site. Special meal tickets will be provided to all conference participants.

Presentation of the papers

Contributions to the conference will be presented as the plenary lectures, invited talks and posters.
The conference halls will be equipped with the overhead projectors and 35 mm slide projectors.
Presenters of the plenary and invited lectures are requested to check the programme for the exact time allocated to them for their presentations. In general, 40 minutes is allowed for plenary talks and 20 minutes for invited talks, all inclusive of disscussion time.
Posters will be displayed in the foyer of the A0 building during one poster session (on Saturday, October 24 afternoon). The dimensions of the poster boards are 80 cm x 120 cm (width x height). Each poster is allocated the number (please, check the list of posters attached). Adhesive tape, pins, etc. will be provided by the organizers.

Publication

Contributions to the conference - after standard refereeing procedure - will be published in the special issue of Journal of Molecular Structure. All speakers and poster authors are invited to submit their papers. They will be collected during the conference at the registration desk .
There is no page limit for the papers. The manuscripts should be prepared following the Journal of Molecular Structure Instructions for Authors.

Exhibition

An exhibition of current equipment and accessories produced by Bio-Rad will be held during the conference.

Conference Programme

Thursday, October 22, 1998
Aula, Building A0, University of Mining and Metallurgy (AGH)
14.00: Conference opening
14.20: Lecture session
15.40: Coffee break
16.00 - 18.30: Lecture session

Friday, October 23, 1998
Lecture Hall, Building A4, University of Mining and Metallurgy
8.30: Lecture session
10.30: Coffee break
11.00: Oral session
Lecture Hall, Building A4, University of Mining and Metallurgy
15.00: Lecture session
17.00: Coffee break
17.20 - 19.00: Oral session

Saturday, October 24, 1998
Lecture Hall, Building A4, University of Mining and Metallurgy
8.30: Lecture session
9.50: Oral session
10.50: Coffee break
11.10: Lecture session
13.10: Oral session
Cafeteria Krakus, University of Mining and Metallurgy
14.10: Lunch
Foyer, A0 Building, University of Mining and Metallurgy
15.30 - 18.00: Poster session

Sunday, October 25, 1998
10.00 - 13.00: Kraków sight-seeing
Cafeteria Krakus, University of Mining and Metallurgy
13.00: Lunch

List of papers

Lectures:

J. Baran, A. J. Barnes, B. Engelen, M. Panthöfer, A. Pietraszko and H. Ratajczak
STRUCTURE AND POLARIZED IR AND RAMAN SPECTRA OF THE SOLID COMPLEX BETAINE-TRICHLOROACETIC ACID

S. Bratos and J-Cl. Leicknam
TIME RESOLVED VIBRATIONAL SPECTROSCOPY, ITS APPLICATION TO THE STUDY OF ULTRA FAST MOLECULAR MOTIONS

M. May, S. Debrus, J. Venturini, J. Baran and H. Ratajczak
SECOND ORDER PHASE MATCHING IN Na2SeO4 H2SeO3 H2O CRYSTAL

F. Fillaux
NEW PROTON DYNAMICS IN SOLIDS REVEALED BY VIBRATIONAL SPECTROSCOPY WITH NEUTRONS

V. N. Semkin, A. Graja, I. Smirani, A. Brau and J. P. Farges
IR PROPERTIES OF BEDT-TTF / IODINE COMPOSITES EXHIBITING METALLIC CONDUCTIVITY

H. D. Lutz
INFRARED AND RAMAN SPECTROSCOPY IN INORGANIC SOLIDS RESEARCH

P. de Peinder and J. H. van der Maas
ORIENTATION OF TRANSITION DIPOLE MOMENTS FROM POLARISED ATR FT-IR MICROSCOPY AND PCA.

A. Müller
POWERS OF TEN-TYPE CHEMISTRY: FROM CLUSTERS VIA GIANT CLUSTERS AND SUPRAMOLECULAR SPECIES TO MATERIALS

G. Puchkovskaya
VIBRATIONAL SPECTRA, DYNAMICS AND POLYMORPHISM OF LONG-CHAIN ALIPHATIC COMPOUNDS AND THEIR MIXTURES

H. Ratajczak, M. May, J. Baran, J. Barycki, S. Debrus, N. Pincon, H. M. Ratajczak
MOLECULAR MATERIALS FOR NONLINEAR OPTICS

F. Secheresse, E. Cadot, B. Salignac, A. Dolbecq, S. Riedel
POLYCONDENSATION OF THE [Mo2S2O2]2+ BUILDING BLOCK VIA ACIDOBASIC PROCESS

L. Stoch and M. Sroda
IR SPECTROSCOPY OF MIXED NETWORK GLASSES

M. W. Urban
MULTI-DIMENSIONAL VIBRATIONAL SPECTROSCOPIC APPROACHES TO SURFACE/INTERFACIAL PROCESSES IN POLYMERS

A. M. Yaremko, M. Ya. Valakh, O. V. Trylis, H. Ratajczak and J. Baran
ANHARMONIC EFFECTS AND TEMPERATURE DEPENDENCE OF THE LATTICE SPECTRA OF FERROELECTRIC CRYSTALS A3B3C9.

R. G. Zhbankov, S. P. Firsov, E. V. Korolik, P. T. Petrov, M. P. Lapkovski, V. M. Tsarenkov, M. K. Marchewka, H. Ratajczak
VIBRATIONAL SPECTRA AND THE STRUCTURE OF BIOPOLYMERS FOR MEDICAL PURPOSES

G. Zundel
Li+, Na+, K+ AND Be2+ BONDS - IR CONTINUA AND CATION POLARIZABILITIES OF THESE BONDS

Orals:

A. N. Shabadash, N. L. Arioutkina
IR-SPECTROSCOPIC EXAMINATION OF DEFECTS IN CONSTRUCTION POLIMER MATERIALS

K. Bajdor, M. Glice, A. Les
VIBRATIONAL SPECTROSCOPY OF GLUTETHIMIDE - FROM ISOLATED MOLECULE TO SOLID STATE

A. Bielański, J. Datka, B. Gil, A. Micek - Ilnicka
FTIR STUDY OF H4SIW12O40 - H2O SUPRAMOLECULAR SYSTEM

J. Datka, B. Gil and B. Staudte
LOW TEMPERATURE IR STUDIES OF CO SORBED IN ZSM-5ZEOLITES

B. Engelen
IR AND RAMAN HEATING TECHNIQUES IN PHASE ANALYSIS AND DECOMPOSITION OF SOLIDS

W. Grochala, J. Bukowska
SPECTROSCOPIC STUDY OF DONOR-ACCEPTOR COMPLEX DESIGNED AS COMPONENT OF MNEMON MOLECULE

H. Haeuseler
APPLICATION OF VIBRATIONAL SPECTROSCOPY TO SEMICONDUCTING CHALCOGENIDES

A. Kocot, R. Wrzalik, K. Merkel and B. Orgasinska
MOLECULAR ORIENTATION AND SWITCHING BEHAVIOUR IN ANTIFERRO- AND FERROELECTRIC LIQUID CRYSTALS STUDIED BY POLARISED FTIR SPECTROSCOPY

P. Kolek, P. Gajdek, K. Pirowska, J. Najbar
AB INITIO CALCULATIONS AND IR, RAMAN AND UV SUPERSONIC JET STUDIES OF VIBRATIONS IN 2,6-DICYANO-3,5-DIMETHYLANILINE

J. Hanuza, L. Macalik, M. Mšczka, E. T. G. Lutz and J. H. van der Maas
VIBRATIONAL CHARACTERISTICS OF THE DOUBLE OXYGEN BRIDGE IN THE NaIn(WO4)2 AND NaSc(WO4)2 TUNGSTATES WITH WOLFRAMITE STRUCTURE

M. Najbar, A. Weselucha-Birczynska, A. Gora, A. Bialas
RAMAN INVESTIGATION OF THE LOW TEMPERATURA INTERACTION OF VANADIA - TUNGSTA CATALYST WITH AMMONIA AND NITRIC OXIDE

I. S. Perelygin
IR SPECTROSCOPIC TECHNIQUE FOR DETERMINING THE CRYSTALLINITY DEGREE OF

POLYTETRAFLUOROETHYLENE MANUFACTURES

J. Ryczkowski and J. Rayss
POLYMER PROTECTIVE COATINGS OF OPTICAL FIBRES. IR INVESTIGATIONS OF UV-CURRING PROCESS

M. M. Szostak
SPECTROSCOPIC STUDIES OF RADICAL IONS FORMATION IN OPTICALLY NONLINEAR m-NITROANILINE CRYSTALS

R. Swietlik
INFRARED STUDIES OF C-H˘˘pi INTERACTIONS IN C60 CRYSTALS WITH AROMATIC HYDROCARBONS

M. Benatsou, J-M. Nedelec, C. Duverger, M. Bouazaoui, B. Capoen, M. Ferrari and S. Turrell
WAVEGUIDE RAMAN AND LUMINESCENCE SPECTROSCOPIES: NON-DESTRUCTIVE TOOLS FOR THE CHARACTERIZATION OF SOL-GEL DERIVED AMORPHOUS THIN FILMS

E. Wentrup-Byrne, J. Gentner and Ch. Armstrong
MUSEUMS, MEDICINE AND MATERIALS: VIBRATIONAL SPECTROSCOPYS CONTRIBUTION.

R. Wrzalik, A. Kocot, B. Cieplak, B. Orgasinska and K. Merkel
DYNAMIC OF FERROELECTRIC SWITCHING OF AFLC USING TIME RESOLVED FTIR SPECTROSCOPY

Posters:

A. Adamczyk, M. Handke, W. Mozgawa
THE FTIR STUDIES OF BPO4. 2SIO2, BPO4. SIO2 AND 2BPO4?SIO2 JOINTS IN AMORPHOUS AND CRYSTALLINE FORMS

A. Barabash, T. Gavrilko, G. Puchkovskaya and A. Roschin
SPECTROSCOPIC INVESTIGATION OF THE LATTICE DYNAMICS IN HYDROGEN- BONDED NH4IO3 CRYSTAL

M. Barańska, L. M. Proniewicz
FT-IR AND FT-RAMAN SPECTRA OF METALLOCOMPLEXES OF CIMETIDINE. STRUCTURAL AND VIBRATIONAL STUDIES

A. Bialas, H. Hobert, J. Camra, J. Sonnefeld, B. Borzecka-Prokop, M. Najbar
INVESTIGATION OF THE THERMAL STABILITY OF ISOPROPOXY DERIVED TI, SN - RUTILE

K. Blaszczak, W. Jelonek, A. Adamczyk
INFRARED SPECTROSCOPIC STUDY OF GLASSES IN THE LI2O - B2O3 - GEO2 (SIO2) SYSTEMS

P. Borowski
THEORETICAL ASSISTANCE IN THE INTERPRETATION OF THE VIBRATIONAL SPECTRA OF THE OZONIDE ANION

I. E. Boldeskul, S. S. Ismailov
VIBRATIONAL SPECTRA AND NORMAL COORDINATE ANALYSIS OF UNSATURATED PHOSHORUS PII AND PIV COMPOUNDS

J. Datka, L. J. Burcham and I. Wachs
VIBRATIONAL SPECTROSCOPY OF SUPPORTED NIOBIUM CATALYSTS

N. A. Davydova, V. V. Tishchenko, J. Baran and M. Vlcek
RAMAN SCATTERING IN S-RICH Ge-S GLASSES

B. Debska & B. Guzowska
SCANKEE-COMPUTER SYSTEM FOR THE INTERPRETATION OF INFRARED SPECTRA

G. I. Dovbeshko, I. V. Sekirin
EXPERIMENTAL AND CALCULATED SPECTRA OF SURFACE POLARITONS IN THE AIR-ZnO-SiO2 SYSTEM

G. I. Dovbeshko, L. I. Berezhinsky, I. V. Sekirin
LOW-FREQUENCY VIBRATIONAL SPECTRA OF AMINOACIDS: THE ROLE OF BIFURCATED HYDROGEN BONDS

A. T. Dubis, E. N. Dubis
COMPARATIVE ANALYSIS OF CUTICULAR WAXES OF POTATO LEAVES USING FT-IR REFLECTION TECHNIQUES AND HPLC

T. Dziembowska, Z. Rozwadowski E. Hadjoudis, I. M. Mavridis,
SPECTROSCOPIC STUDY OF THERMOCHROMISM OF DI-ANIL OF 2-HYDROXY-5- METHYL-ISOPHTHALDEHYDE

S. P. Firsov, R. G. Zhbankov,P. T. Petrov, M. P. Lapkovski, V. M. Tsarenkov, M. K. Marchewka, H. Ratajczak
VIBRATIONAL SPECTRA OF POLYSACCHARIDES: DEXTRAN AND PULLULAN OF DIFFERENT MOLECULAR MASSES

W. Gadomski, B. Ratajska-Gadomska and M. Boniecki
SOL - GEL TRANSITION OF THE D2O GELATIN SOLUTION IN RAMAN AND FLUORESCENCE SPECTROSCOPY

L. V. Viduta, T. A. Gavrilko, Z. O. Tkachenko, A. G. Chepilko J. Baran, M. Marchewka
LATERAL INTERACTIONS AND STRUCTURE OF THIN ORGANIC FILMS BUILT FROM POLAR LONG-CHAIN ALIPHATIC COMPOUNDS

I. Gnatyuk, G. Puchkovskaya, O. Yaroshchuk
SPECTROSCOPY STUDY OF LIQUID CRYSTALS IN CONFINED VOLUME

E. Greiner-Wronowa, C. Paluszkiewicz, L. Stoch
APPLYING FTIR IN STUDY OF ARCHEOMETRIC SENSOR GLASSES

B. Grobelna, A. M. Klonkowski, T. Widernik
THERMAL ANALYSIS OF AMINATED SILICATE XEROGELS OBSERVED BY FT-IR

A. Drelinkiewicz, M. Hasik, S. Quillard, C. Paluszkiewicz
INFRARED AND RAMAN STUDIES OF PALLADIUM - NITROGEN-CONTAINING POLYMERS INTERACTIONS.

M. M. Ilczyszyn and M. Wierzejewska
VIBRATIONAL AND CALORIMETRIC STUDIES OF 1:1 AND 2:1 BETAINE COMPLEXES WITH AMINOSULFONIC ACID.

B. Kaczmarczyk and D. Sek
INVESTIGATIONS OF THE THERMAL CYCLIZATION PROCESS OF POLYAMIDEIMIDAAZOPYRROLONES BY FTIR SPECTROSCOPY

A. Kaflak-Hachulska and W. Kolodziejski

PRELIMINARY RESULTS ON IR MICROSCOPY OF HUMAN BONE

J. I. Kukielski
VIBRATIONAL SPECTRA OF FLEXIBLE MOLECULES

H. Baranska, J. Kuduk-Jaworska, A. Romaniewska
VIBRATIONAL SPECTROSCOPY OF POTENTIAL METAL-BASED DRUGS

A. Kulczycki, Z. Kowalski
SPECTROSCOPIC ANALYSIS OF THE SEDIMENTS FROM TREATMENT OF CHROMIC WASTES WITH THE METHOD USED ASHES FROM FLUIDIZED BED COMBUSTION OF COAL

J. Laska, C. Paluszkiewicz and M. Handke
NEAR INFRARED SPECTROSCOPIC STUDIES OF POLYANILINE

A. Lapinski, R. Swietlik, O. O. Drozdova and L. A. Kushch
TEMPERATURE DEPENDENCE OF THE IR REFLECTANCE SPECTRA OF [Pd(dddt)2]Ag1. 54Br3. 50 AND [Ni(dddt)2]AgxBry CRYSTALS

M. Laczka, K. Cholewa
STRUCTURAL EXAMINATIONS OF GEL-DERIVED GLASS AND GLASS-CRYSTALLINE MATERIALS OF THE CaO-P2O5-SiO2 SYSTEM

K. Rutkowski, S. Melikova
VIBRATIONAL SPECTRA OF OC. . . HCL COMPLEX IN KR SOLUTIONS AT LIQUID TO SOLID PHASE TRANSITION.

U. Moryc AND W. S. Ptak
Infrared Spectra of beta-BaB2O4 and LiB3O5 : a New Nonlinear Optical Borates.

W. Mozgawa, M. Sitarz
THE SPECTROSCOPY STUDY OF DIFFERENT ALUMINOSILICATE STRUCTURES

A. Kocot, K. Merkel, B. Orgasinska and R. Wrzalik
POLARISED IR SPECTROSCOPY FOR THE STUDY OF 3-DIMENSIONAL ORIENTATIONAL ORDER IN DISCOTIC LIQUID CRYSTALS

E. Pamula, P. Rouxhet, C. Paluszkiewicz
FTIR AND XPS STUDY OF CARBON FIBRES TREATED WITH NITRIC ACID

M. Rokita, M. Sitarz, M. Handke
SPECTROSCOPIC STUDIES OF THE AMORPHOUS SiO2-AlPO4 MATERIALS

J. Ryczkowski
ADSORPTION OF ALKALI SALTS OF EDTA ON INORGANIC SUPPORTS

M. Sitarz, W. Mozgawa and M. Handke
RINGS IN THE STRUCTURE OF SILICATE GLASSES.

A. Stoch, W. Jastrzebski, A. Brozek, B. Trybalska, M. Cichocińska, E. Szarawara
FTIR MONITORING OF THE GROWTH OF APATITE LAYERS CONTAINING CARBONATE FROM SIMULATED AND NATURAL BODY FLUIDS

A. Stoch, Cz. Paluszkiewicz, M. Szklorz and J. Węglowska
FTIR STUDY OF THE CHEMICAL DETERIORATION ON HISTORIC BUILDINGS AND MONUMENTS IN KRAKÓW