

*Events*

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**20TH ANNIVERSARY CONFERENCE ON CALORIMETRY  
AND THERMAL ANALYSIS**

**Osaka Institute of Technology, Asahi-ku, Osaka  
November 13–16, 1984**

**The following lectures and posters were presented:**

Thermal properties of thermotropic liquid crystals with low molecular weight: *M. Sorai* (Osaka University, Toyonaka, Osaka)

Thermodynamic study of niobium oxides with O/Nb ratios from 2.47 to 2.50 using a high temperature galvanic cell: *T. Matsui* and *K. Naito* (Nagoya University, Nagoya)

Enthalpy measurements for the sulfide systems of Fe–S, Sb–S and Pb–S by using a drop calorimeter: *M. Kana*, *Y. H. Lee*, *K. Itagaki* and *A. Yazawa* (Tohoku University, Sendai)

Heat capacity and internal motion of molten Bi + Bi<sub>13</sub> mixtures: *K. Ichikawa* and *T. Matsumoto* (Hokkaido University)

Recent studies of phase equilibria at high pressures: *G. M. Schneider* (Ruhr-University, FRG)

Thermodynamic studies of successive phase transition in BaZnGeO<sub>4</sub>: *T. Atake*, *H. Chihara*, *N. Tamba*, *Y. Ishibashi* (Osaka University, Osaka)

Heat capacities of solid and liquid germanium tetrachloride: *H. Kawaji*, *T. Atake* and *H. Chihara* (Osaka University, Osaka)

Heat capacity anomalies of nickel complexes, [Ni<sub>2</sub>(en)<sub>4</sub>(SCN)<sub>2</sub>]<sub>12</sub> and [Ni(en)<sub>2</sub>(SCN)<sub>2</sub>], at low temperatures: *T. Wakamatsu*, *M. Sorai* and *H. Suga* (Osaka University, Osaka)

Construction of a high pressure calorimeter and heat capacity measurement of hexagonal ice: *M. Dguni*, *O. Yamamuro*, *T. Matsuo* and *H. Suga* (Osaka University, Osaka)

Heat capacity and phase transitions of methylammonium hexachlorotellurate: *N. Onoda*, *T. Matsuo* and *H. Suga* (Osaka University, Osaka)

The measurements of heat produced by living cells using a thermoactive cell analyzer: *M. Yamamoto*, *M. Nakamura*, *T. Miyamae*, *H. Yamazaki* and *M. Yamamura* (St. Marianna University)

- Differential scanning calorimetry of hydrazine-induced hepatic megamitochondria: *M. Momota, K. Yamashita, M. Horiuchi and T. Wakabayashi* (Rigaku Corporation, Tokyo)
- Thermodynamics of the interaction between pancreatic  $\alpha$ -amylase and the amylase inhibitor of *Phaseolus vulgaris*: *S. Murosaki, H. Fukada and K. Takahashi* (University of Osaka Prefecture, Osaka)
- Reaction kinetic study on thermal decomposition and ignition of unstable chemicals: *T. Sawada and S. Tamaki* (Kinki University)
- Digital pyrometry with arc imaging furnace for secondary standard points at high temperature: *T. Yamada, M. Yoshimura, S. Somiya, M. Mizuno and T. Noguchi* (Government Industrial Research Institute, Nagoya)
- Understanding and classification of calorimeters by thermodynamic equations: *S. Tanaka* (National Chemical Laboratory for Industry)
- Acid hydrolysis of cellulose on thermal analysis: *T. S. Kuniyoshi and H. Ogawa* (National Chemical Laboratory for Industry)
- Thermogravimetry under the atmospheres of corrosive gases—Sulfidation and chloridation of Fe, Co and Ni metals in the reduction atmosphere: *T. Okutani, Y. Nakata and T. Goto* (Gov. Ind. Dev. Lab., Hokkaido)
- The thermal decomposition process of  $\text{NiLnX}_2$  complexes: *T. Kimura, M. Ohta, T. Yamadera and S. Akiyama* (Shibaura Institute of Technology, Tokyo)
- Determinations of ionization heat of organic acids by the isoperibol calorimeter: *T. Fujie and N. Fukushima* (Kyoritsu College of Pharmacy)
- Enthalpy of solution of  $\text{SrFe(IV)O}_3$  into hydrochloric acid: *T. Kimura, M. Shumida, F. Kanamaru and S. Takagi* (Kinki University, Osaka)
- Molar excess enthalpies of 2-chloroethanol and 2-bromoethanol with water at 298.15: *K. P. Gierycz, M. Denda, H. Touhara and K. Nakanishi* (Kyoto University, Kyoto)
- Thermal diffusivity measurement of thin plate by ac calorimetric technique: *Y. Sasuga, R. Kato, A. Maesono and I. Hatta* (SONKU-RIKO Inc.)
- Vaporization study on  $\text{V}_2\text{O}_3$  and two-phase mixture of  $\text{V}_2\text{O}_3$  and VO by mass-spectrometric method: *W. Banchorndhevaku, T. Matsui and K. Naito* (Nagoya University)
- Adiabatic compressibilities of binary solutions (5): Polar solutions: *K. Ohmuro, K. Tamura and S. Murakami* (Osaka City University, Osaka)
- Flow microcalorimeter for heat capacity of solutions: *H. Ogawa and S. Murakami* (Osaka City University, Osaka)
- The quantitative DTA for the measurements in the high temperature range: *R. Kinoshita, N. Nakamura, N. Matsumori and Y. Teramoto* (Seiko Instruments and Electronics Ltd.)

- DTA measurement under high-pressure and high temperature by rapid-heating reactor: *K. Makino, Y. Takasaki and Y. Koizumi* (High-Pressure Chemical Engineering Laboratory)
- Solubility and heat of solution of aromatic oligomers: *O. M. Hamada, T. Kawaguchi, T. Morikawa, T. Kojima and Y. Urata* (National Defence Academy)
- Enthalpies of solution of methyl alkanoates in benzene and in cyclohexane at infinite dilution: *T. Kuroya and K. Kusano* (Miyazaki University)
- Excess enthalpies of mixing of ( $n-C_6H_{13}OH$  or  $n-C_7H_{15}OH$ ) + FMSO, + DMSO at 298.15 K: *T. Kimura, H. Mizuno and S. Takagi* (Kinki University, Osaka)
- Apparatus for measuring the solubility of gases at different temperatures and pressures: *H-K. Yan, Z-L. Zhang and L. G. Hepler* (University of Alberta, Canada)
- Heat capacity and phase transitions of  $[Fe(C_5H_5)-(C_6H_6)](PF_6)$  crystal between 13 and 390 K: *Y. Shiomi and D. Sorai* (Osaka University, Osaka)
- Phase transitions and freezing phenomenon in the  $K(CN)_xBr_{1-x}$  system: *K. Moriya, T. Matsuo, H. Suga and F. Luty* (Osaka University, Osaka)
- Calorimetric studies of p-phenylphenol: *K. Saito, T. Atake and H. Chihara* (Osaka University, Osaka)
- Heat capacity and phase transitions of lanthanum perchlorate octahydrate: *Y. Iguchi, T. Matsuo and H. Suga* (Osaka University, Osaka)
- Phase transition of bound water sorbed in polystyrene sulfonate salts: *K. Nakamura, S. Hirose, H. Hatakeyama and T. Hatakeyama* (Industrial Research Institute of Kanagawa Prefecture)
- Thermal analysis of cellulose acetate solids: *K. Kamide and M. Saito* (Asahi Chemical Industry Co. Ltd., Osaka)
- Thermal analysis of ovotransferrin-metal complexes, based on the change of UV-absorbance: *H. Ikeda, M. Matsushita and K. Satake* (Science University of Tokyo)
- Studies on water in food by thermal analysis: *T. Takigawa, Y. Baba and A. Kagemoto* (Osaka Institute of Technology, Osaka)
- Calorimetric study of invertase in aqueous solution: *H. Uedaira and A. Yamauchi* (Research Institute for Polymers and Textiles)
- The kinetics of thermal degradation by the data processing system: *K. Nagata, T. Watanabe and Y. Shibuya* (Mitsubishi Electric Corporation)
- Thermal decomposition of calcium nitrate tetrahydrate under self-generated atmosphere: *K. Isa, H. Torii and M. Nogawa* (Fukui University)
- Thermochemical behavior of cobalt sulfates in  $SO_2-O_2-SO_3$  atmospheres: *T. Maruyama, Y. Yano and Y. Saito* (Tokyo Institute of Technology, Yokohama)

- Thermal decomposition process of addition compounds of  $\text{PbX}_2 \cdot n\text{P}_y$  ( $\text{X} = \text{Cl}, \text{Br}, \text{I}$ ;  $n = 1, 2$ ;  $\text{py} = \text{pyridine}$ ): *G. Hihara, H. Miyamae and M. Nagata* (Josai University)
- Study of solutions with the CBO calorimeter: *B. Jalon* (SETARAM, France)
- Effect of thermal history on phase transition behavior of water-sodium poly (styrene sulfate) system: *T. Hatakeyama, K. Nakamura, S. Hirose and H. Hatakeyama* (Research Institute for Polymers and Textiles)
- Thermoanalytical investigation of the interaction of water and amphiphiles. (17th)—Effect of water content on the subtransition phenomenon in “L-DPPC-water” system: *H. Hashigami, M. Kodama, K. Suzuki and S. Seki* (Kwansei Gakuin University, Nishinomiya)
- Differential scanning calorimetry of various plasmid mutants: *Y. Maeda, Y. Kawai, T. Fujita and E. Ohtsubo* (University of Tokyo)
- Construction of the DTA equipped with a laser apparatus and phase equilibrium of copolymer solutions: *K. Inoue, Y. Baba and A. Kagemoto* (Osaka Institute of Technology, Osaka)
- Multi-state transition for the thermal unfolding of globular proteins as evaluated from the analysis of DSC curves: *K. Takahashi and H. Fukada* (University of Osaka Prefecture, Osaka)
- Calorimetric studies of glycolysis of *E. coli* under non-growing conditions: *H. Wada, N. Murase and K. Gonda* (Tokyo Denki University)
- Isothermal biocalorimetry, a status report: *I. Wadso* (University of Lund, Sweden)
- Construction and testing of a gas-solid reaction calorimetric system using a Calvet microcalorimeter, low temperature type: *N. Kuriyama and M. Sakiyama* (Osaka University)
- Construction and testing of a new temperature jump (drop) calorimetric system using a Calvet microcalorimeter, standard type: *T. Yamane and M. Sakiyama* (Osaka University)
- Trial production and performance of high pressure TG-DTA system: *T. Harigai, M. Maruai and K. Makino* (Shimadzu Corporation)
- Influence of the ionic strength on the formation of polynucleotide duplexes: *H. Talui, Y. Baba and A. Kagemoto* (Osaka Institute of Technology, Osaka)
- Affinity interactions by glycoprotein-sepharose: flow sorption calorimetry: *S. Marimoto and M. Kodama* (Research Institute of Polymers and Textiles)
- On the glass transition phenomenon as seen from the pressure dependence of  $T_g$ : *H. Kanno* (Meisei University, Tokyo)
- Studies on thermally stimulated depolarization current (TSDC) of random copolymers: *H. Ohnishi and T. Kato* (Utsunomiya University)
- Non-isothermal crystallization process of  $\text{ZrF}_4\text{—BaF}_2$  and  $\text{ZrF}_4\text{—BaF}_2\text{—NaF—AlF}_3$  fluoride glasses: *K. Matusita, K. Miura, T. Komatsu and R. Yokota* (Technological University of Nagaoka)

- Thermal decomposition of praseodymium-lanthanum mixed oxalate in various atmospheres: *Y. Watanabe, S. Miyazaki, T. Maruyama and Y. Saito* (Tokyo Institute of Technology, Yokohama)
- Thermal decomposition of ammonium uranate: *T. Sato, S. Shiota and F. Ozawa* (Shizuoka University, Hamamatsu)
- Application of a microcomputer to kinetic analysis of thermogravimetry. Kinetic isotope effect in dehydration of calcium oxalate monohydrate: *R. Ito, K. Iwata, Y. Masuda and Y. Ito* (Niigata University)
- Analysis of calcium sulfate hemi-hydrate by high pressure DTA: *K. Amita, H. Yoshioka and G. Hashizume* (Industrial Research Institute of Hyogo Prefecture)
- An improvement of a direct heating pulse calorimeter for the measurement of heat capacity of semiconducting materials at higher temperatures: *H. Inaba and K. Naito* (Nagoya University)
- Heat capacity of barrelene ( $C_8H_8$ ): *K. Kobayashi, T. Matsuo, H. Suga, M. Manssan, J. Andrews and S. Sunner* (Osaka University, Osaka)
- Heat capacity of perfluorobiphenyl and perchlorobiphenyl from 3 to 300 K: *K. Saito, T. Atake and H. Chihara* (Osaka University, Osaka)
- Heat capacity and phase transitions of spin-crossover complex,  $[Fe(2\text{-pic})_3]Cl_2 \cdot C_2H_5OH$  crystal: *K. Kaji and M. Sorai* (Osaka University, Osaka)
- Thermodynamically consistent theory of heat conduction calorimeter: *S. Tanaka* (National Chemical Laboratory for Industry)
- An attempt to construct a system of calculating chemical equilibria: *H. Yokakawa* (National Chemical Laboratory for Industry)
- Heat of immersion of silicon nitride: *M. Hattori and Li Jie* (Hiroshima University, Hiroshima)
- The change of thermal behaviors of natural stellerite by alkaline cations exchange: *A. Yamazaki, H. Nisido and R. Ohtsuka* (Waseda University)
- Study of the adsorption of organic molecules on clay minerals by thermal analysis: *S. Yariv* (Hebrew University, Israel)
- Twenty years in thermal analysis: *H. Kambe* (Gunma University)
- Historical reminiscence of the calorimetry conference in Japan: *S. Seki* (Kwansei Gakuin University)
- Thermal decomposition of aluminium hydroxides to aluminas: *T. Sato* (Shizuoka University, Hamamatsu)
- Thermal characterization of near-surface of iron-oxide powders by emanation thermal analysis: *T. Ishii* (Hokkaido University, Sapporo)
- Reaction of barium nitrate with titanium dioxide around the melting temperature of the nitrate: *H. Tagawa and J. Ohashi* (Yokohama National University)
- A calorimetric study on the relative thermal stabilities of some cobalt(III)-diamine complexes in solid phase: *J. Nozawa, M. Suzuki, A. Uehara and R. Tsuchiya* (Kanazawa University)

- Thermoanalytical characterization of electronic materials: *P. K. Gallagher* (Bell Laboratories, USA)
- Thermoanalytical investigations of technical products in the automobile industry: *H. Pfaffenberg* (Netzsch-Gerätebau GmbH, FRG)
- Thermal decomposition of zirconium hydroxide: *T. Sato, S. Ban* and *S. Ikoma* (Shizuoka University, Hamamatsu)
- New TA-MS coupling system with increased sensitivity for low volatile materials: *W.-D. Emmerich* (Netzsch-Gerätebau GmbH, FRG)
- Heat capacity of cesium iodide at high temperatures: *Y. Takahashi, Y. Kohsaka* and *Y. Takahashi* (University of Tokyo)
- Measurement of latent heat by DSC with synthetic sapphire for standard materials: *Y. Takahashi* (Electrotechnical Laboratory)
- Construction of an adiabatic calorimeter for vapor-deposited samples: *H. Hikawa, M. Oguni, T. Matsuo* and *H. Suga* (Osaka University, Osaka)
- Heat of immersion of ZnO in organic liquids: *T. Morimoto, Y. Suda* and *M. Nagao* (Okayama University)
- Thermal behaviors of vinyl esters of long-chain fatty acids and their comb-like polymers: *Y. Shibasaki* and *K. Fukuda* (Saitama University)
- Phase transitions of odd *n*-alkanes of high purity: *K. Takamizawa, D. Irii, Y. Nagao* and *Y. Urabe* (Kyushu University)
- Precise measurements of the heat capacities for (*n*-alkanols + *n*-heptane): *S. Toyama, R. Tanaka* and *S. Murakami* (Osaka City University)
- Heat capacity and phase transition of a five-coordinated copper complex, [Cu(L-isoleucine)<sub>2</sub>(H<sub>2</sub>O)], at low temperatures: *T. Wakamatsu, M. Sorai* and *H. Suga* (Osaka University, Osaka)
- Atacamite, Cu<sub>2</sub>Cl(OH)<sub>2</sub>. A spin glass behavior in low-temperature heat capacities: *H. Kawaji, T. Atake, M. Chihaha, W. Mori* and *M. Kishita* (Osaka University, Osaka)
- Design and testing of a calorimeter for biological uses: *K. Kobayashi, T. Fujita* and *S. Hagiwara* (University of Tokyo)
- A new conduction type calorimeter with thermal compensation employing thermomodule as a thermosensor and a thermal compensator: *K. Amaya* (National Chemical Laboratory for Industry)
- Partial molar enthalpy of formation of solid solution in transition metal sulfides by combustion calorimetry: *M. Nishio, N. Kuwata, H. Hinade, M. Wakihara* and *M. Taniguchi* (Tokyo Institute of Technology)
- Micro-conduction calorimeters for measuring enthalpies of vaporization: *K. Kusano* (Miyazaki University)
- High precision sublimation microcalorimetry: *M. Sakiyama, S. Murata* and *S. Seki* (Osaka University)

- High-resolution AC calorimetry and critical behavior at phase transitions: *C. W. Garland* (Massachusetts Institute of Technology, USA)
- Heat capacity of quartz in the incommensurate phase by AC calorimetry: *I. Hatta, M. Matsuura, H. Yao, K. Gouhara* and *N. Kato* (Nagoya University)
- Construction of adiabatic microcalorimeters for low-temperature heat capacity measurement: *T. Matsuo* and *H. Suga* (Osaka University, Osaka)
- Accuracy and reliability of heat capacity measurements of tiny specimens using DSC: *T. Ashida, Y. Miyamoto* and *S. Kume* (Osaka University)
- The interactions between nucleic acid and adriamycin by microcalorimetry: *K. Kanou, T. Baba* and *A. Kagemoto* (Osaka Institute of Technology, Osaka)
- Recent developments of microcalorimetry at high pressure: *G. M. Schneider* (Ruhr-University, FRG)
- Recent developments in micro solution calorimetry: *I. Wadso* (University of Lund, Sweden)
- Heat exchange calorimetry modified for smaller size samples: *S. Fujieda* and *M. Nakanishi* (Ochanomizu University, Tokyo)
- Some problems in solution microcalorimetry: *S. Takagi, T. Kimura* and *M. Maeda* (Kinki University, Osaka)
- Thermochemistry of alkali titanates: *T. Mitsuhashi* and *Y. Fujita* (Nat. Inst. Res. Inorg. Mat.)

#### MAPLE-TAWN AWARD 1984



The first Maple-Tawn Award has been presented to Dr. L. S. Boersma on nov. 23<sup>rd</sup> in Noordwijk (ESTEC).

This new award will be presented every two years to a dutch person who has given outstanding contributions to thermal analysis.

Of course, the first award has been presented to Dr. S. L. Boersma, the author of the article: "A theory of differential thermal analysis and new methods of measurement and interpretation", which appeared in 1955.

This fundamental article gave rise to the development of the quantitative heatflux DSC technique and the measuring cell of such instruments is still called Boersma cell. The Award has been installed by the Thermal Analysis Working group of the Netherlands (TAWN) and is supported by Maple Instruments, a dutch producer of thermal analysis instruments. The accompanying photograph shows from left to right: Dr. G. van der Plaats, director of Maple Instruments, Mrs Boersma, Dr. Boersma and Prof. A. Schuyff, president of the TAWN.

### NETZSCH-GEFTA-AWARD 1984 FOR

*Prof. Dr. Antonius Kettrup, Paderborn*

presented in Interlaken/Switzerland, September 10, 1984 (ESTAC'3)



The photo shows Professor Kettrup (middle) with Dr. Marti, Chairman, Organizing Committee (left) and Dr. Emmerich, President, Netzsch-Gerätebau (right).

The Nominating Committee of the Gesellschaft für Thermische Analyse e.V. (GEFTA) has selected Prof. Dr. Antonius Kettrup, Paderborn/FRG for the NETZSCH-GEFTA-Award 1984.

Antonius Kettrup was born on March 26, 1938 in Arnsberg/FRG, the son of a master plumber. He attended primary school—partly during the last years of the war—and then grammar school in Arnsberg which he left after successful final



examination. In the summer term of 1958 Antonius Kettrup began studying physics at the Georg-August University Göttingen and extended his studies during the following semesters with chemistry, mineralogy, and biology. Further Mr. Kettrup attended courses in industrial economics, pedagogy, and philosophy. After the diploma pre-examination in chemistry in February 1962 Mr. Kettrup graduated in 1963 with M. Sc. from the Georg-August University Göttingen and in 1966 with the degree Dr. rer. nat. from the Wilhelms-University, Münster, the subject being "Studies of systematic inorganic extraction processes".

In 1963/64 Dr. Kettrup worked as an assistant in the Institute for Inorganic Chemistry at the University of Göttingen and then moved to the Ruhr-University Bochum, where he worked first as a scientific assistant and later as a lecturer until spring 1971.

In May 1971 Dr. Kettrup was appointed university professor for "chemistry and didactic of chemistry" at the Pädagogische Hochschule Westfalen-Lippe, Dept. Paderborn.

The habilitation in June 1971 for "Inorganic and Analytical Chemistry" at the Ruhr-University Bochum had the subject: "chelate forming properties of different substituted aceto acet amides".

As an invited lecturer in the Chemistry Dept. of Ruhr-University Bochum, and rejecting the offer of a professorship for analytical chemistry at the university Brasilia/Brazil, he was appointed professor of applied chemistry at the university Paderborn in April 1980.

Since February 1984 he has an offer in hand from the Capetown university, South Africa to become successor of Prof. Irving as Head of the Department of Analytical Science.

Prof. Kettrup is a member of almost 20 professional committees, including:

German society for mineral oil science and coal chemistry (DGMK)—expert group for analysis.

Senate Commission for "investigation of health hazards of chemical compounds in the work area" of the German Research Society (DFG).

Expert of the Ministry for Research and Technology (BMFT) for surface techniques and finishing (new technologies).

From 1966 until the present time he is responsible for more than 100 scientific publications, predominately concerned with the application and development of analytical methods.

During the same period Prof. Kettrup presented more than 100 scientific papers. Most in Europe, but also in USA, Canada and South Africa. He is member of the Editorial Boards of "Thermochimica Acta" and "Intern. Environ. Anal. Chemistry".

As professor of Applied Chemistry, Prof. Kettrup heads five research groups at Paderborn university.

The research group "thermochemical analysis methods" measures calorimetrically the formation enthalpies of metal complexes under the influence of substituents at the ligand. With a DTA-TG mass spectrometer equipment the thermal decomposition of metal complexes, selective ion exchangers, polymeric material and coal is studied.

For many years now, Prof. Kettrup has employed thermal analysis instruments such as DTA, DSC and thermobalances. In this field he favours various simultaneous methods as the combined information, e.g. from a DTA/DSC-TG-MS (mass spectrometer) gives much quicker, better and more easily interpreted results.

The GEFTA members know the commitment of Prof. Kettrup to GEFTA, its tasks and problems. His active co-operation in the organizing committee of 6th ICTA '80 Bayreuth, his participation in the joint conference with the Scandinavians in August 1983 in Copenhagen, and the organisation of the symposium "Thermoanalytical methods in science and practice" on the occasion of the 10th anniversary of GEFTA in Paderborn, in March 1984, together with his active work in the executive committee of GEFTA show his connection with these subjects.

Prof. Kettrup is married since 1964, and his only daughter Julia presently attends grammar school.

We are sure most of you know Prof. Antonius Kettrup. Those who know him more closely or are friends of his know that because of his activities in his profession and honorary functions there is almost no time left for family and hobbies.

During the little time left his special interests are fossils and the collection of old engravings, where he concentrates on completeness within a small regional area.

A boxer-dog forces the awardee to take a walk in the evening or night.

The NETZSCH-GEFTA-Award, sponsored by NETZSCH-Gerätebau GmbH, Selb/Bayern, is awarded annually to a person in recognition of his distinguished record in the Thermal Analysis field.

Outstanding merits in instrumentation and organization in this field are also recognized with this Award.

We present Prof. Dr. Antonius Kettrup, Paderborn/FRG with the 1984 NETZSCH-GEFTA-Award not only for his many and excellent successes in the field of Analytical Chemistry, which are partially carried out with experimental and research thermal analysis, but also for his extraordinary involvement in national and international committees in this field and his outstanding contribution to GEFTA.

The NETZSCH-GEFTA-Award carries with it an honorarium of DM 3,000.-.

We congratulate Prof. Antonius Kettrup.