



# ICTAC NEWS

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### Editorial preface

Dear Colleagues,

You are getting herewith a specific form of ICTAC NEWS as somehow irregular and yet non-traditionally edited issue. I was to launch this approach as an only passable way to get the inherent data appropriately distributed to all TA societies beforehand. It went on three consequent publishing intervals when my regularly submitted contributions to ICTAC News were not accepted for print without receiving single words of explanation (not referring to slow interaction with executives). What's more I finally lost any dealings to the ICTAC officers when my communications were left unanswered. There I clearly pointed out my intention to publish a separate version of news which remained without answer again - I understood it as a silent sign of approval. Last but not least, I am not welcome to participate at the next council meeting in Barcelona although I am a regularly nominated representative for the Czech TA group. Therefore I cannot personally advocate and rationalize there the commentary remarks received and edited that again supported my intention to write it and let it separately known. Among others there are the most important ideas:

- formation of a new ICTAC travelling founding (about US\$ 3000.- per ICTAC Conference)

in order to make possible participation of (preferably young) scientists from less wealthy countries,

- perfection of objectivity for any balloting procedure when electing new officers (CV, publications/citation score, experience, Email votes) and possible revision of functioning periods (in order to make them all compatible),

- certain revision of ICTAC rules (unjustified payments, contributions to News).

I hope that such suggestions, together with all other remarks specified in the attached report, will be carefully discussed and that an appropriate action would be undertaken to revise competent passages and paragraphs of inherent societal practice. I am sure that this action would find befitting response and courteous understanding among ordinary members. However I am afraid that the ICTAC officers would not honor this activity. Presumably they would consider it in the same way as they did for my previous reviewing addresses were I was accused of purposefully doing unfriendliness - saying truth is always an ingratitude job. It was not made to await any ICTAC recognition award although I spent lot of my own free time and afford to complete this task. Being nearly under information embargo I do not anticipate any sign of thanks that would be appropriate to such an extensive labor - I am aware I do not belong to favorite officers neither among westerners. Nevertheless I am emotionless not inspecting if it would be treated in light of underestimation or just as a matter of ruling inactiveness. Clearly I did not aspire to undertake such an editorial job of a speaker for a certain group of ICTAC members but I am internally sure that it was necessary and legitimate since any single member from any remote corner has its rights to be listened to.

I provided herewith a job as it should be. It was done in my best objective will and hopefully with certain distinctions. Giving a verdict is in your hands and only readers can judge if it is good or not. I, however, am not going to prolong any discussions on its content; I have other business to do. As a result, I hope that the councilors will bother themselves to give ears to ideas that may be seen strange but that may represent meaning from the other, yet unexplored side of scientific barricade. I also hope that the councilors would recognize the labor involved and would agree on a small financial reward of its cost for which I already asked long ago to the ICTAC treasurer but did not received any response.

Thanking for your attention, very truly yours

Jaroslav Sestak

*Review Article*

## **ICTAC'2000 – Commentary Report**

### *Introduction - The State-of-the Art*

Various comments have been perceived from the participants at the 12<sup>th</sup> ICTAC in Copenhagen 2000 as well as from those whom circumstances prevented from participating. As many as 50 remarks were received and put in a condensed form as shown below. There became involved scientists from a choice of countries (e.g., Bulgaria, Czechia, Hungary, Romania, Slovakia, Poland, Russia, Ukraine, Estonia, Lithuania, Yugoslavia, India,

Bangladesh, Germany, Italy, Netherlands, Belgium, USA, Spain or Switzerland). However, no a particular preference was accounted for any single country neither for a certain commentary view. A non-personal citation process was applied and request for the anonymity of the responders was respected. All comments have been submitted and consequently edited with the positive aim of improving both the Congresses and the functioning of ICTAC as an international organization. There was not a slightest intention to deteriorate valuable work of ICTAC itself but, on contrary, all the responders wished to help to improve the multinational serviceability of ICTAC. Some of the intrinsic questions were previously brought into the ICTAC consideration by the letter [1] that was sent to the ICTAC council before the ICTAC 12th meeting in August 2000 (see enclosure). Its content, however, was left unobserved in more details so that certain troubles inherent in the ICTAC 12<sup>th</sup> upheld a long lasting apprehension and stimulated a more coherent embryos of critique that grew again ignored (and without a single admission of responsibility, answerability and/or apology).

However, the motivation to initiate such a kind of inquiry would have been an entire task for the ICTAC executive officers themselves and in this light this report is factually replacing their inactivity. Upon realizing it I, as the task editor, tried to fully respect the tradition and honor of ICTAC. I am also aware of my role of being one of the first ICTAC builders back in 1965 and I, absolutely, do want to have ICTAC continuing in its good tradition and best progress. I, however, am reminiscent of the late Robert Mackenzie who made the first thermoanalytical get-together as an open forum for all ideas - the early necessary step leading to the foundation of the entire ICTAC confederation. This was actually done during the first TA conference held in Northern Polytechnic in London (April 13-14 1965). As a participant I can remember the most active thermoanalysts of those time, among others Brian Currell, Darrek Smith, Paul Garn, John Redfern, Wesley Wendlandt, David Dollimore, Gunnar Berggren, Michael Dudley, Ferenc Paulik or Laros Erdey. After 35 years of successful functioning of ICTAC there is time to listen voice of another generation of coming enthusiasts again, either our ICTAC members or other associates of a wider thermoanalytical family. Therefore a certain modernization and/or modification seems be necessary and those, who bothered themselves and spent time to assist such an aspiration program by supplying their comments, should not be betrayed but appreciated. Therefore we may find or not any essentiality to possibly modify our originally proposed societal rules. Last 1992 revision of the ICTAC Statutes may, therefore, be found acting behind the times, particularly now at the beginning of the third millennium. At least we have to apprehend each other opinions across any boundary and regardless of any origin.

*The comments fall into three groups of attention:*

- (1) General problem of science funding,
- (2) Those directly related to ICTAC 12<sup>th</sup>, 2000 and
- (3) Those related to the functioning of the ICTAC Council and Confederation.

**(1) The general problem of the discrepancies between the economic backgrounds of thermoanalysts from different countries**

It is recognized that an appropriate funding science and scientists is a world problem. We are also aware that a scientific organization like ICTAC can do little to remedy the associated problems. Nevertheless the ICTAC Council should carefully consider the current financial situation particularly because there persist definite discrepancies between the richer West and economically deficient East and South. In particular we can mention the unfortunate communistic period of some Eastern countries when such an economic disparity was accepted with a polite curiosity and often subjected to a mercy help from the richer Westerners mostly on individual levels (leaving, however, unpleasant psyche of unpopular act of bagging). After liberalization at the beginning of nineties the discrepancy was unnaturally removed only between the East and West Germany and is yet persisting for all other newly liberated countries of the East (and particularly true for developing countries, too). Yet continuing East-West disparity was already mentioned in the year 1992 during my TA/ICTAC award lecture [2] (The perspectives of the Eastern Thermoanalysts) or discussed in the 1999 ICTAC News [3] or even mentioned by others [4]. In the following table there is shown an example, statistical and personal data of two scientists: Russian first class thermoanalysts, Prof. Dr. V. A. Logvinenko and myself (representing a country to become soon a member of the European society thus screening a certain bridge between the East and West). Both of us are in the same age, level of promotion and mutually represent in their countries the best awarded scientists (with the highest citation score).

The monetary values are shown in the US\$ and given for one year

<i>subject</i>	<i>V.A.Logvinenko</i>	<i>J. Sestak</i>
age	64	63
number of published papers since 1990	49	93
personal income (full time at Acad.Sci.)	828 (lab. head)	4848 (senior scient.)
extra income (half time at University)	400(professor)	2316 (vice dean)
state scholarship for spec. achievements	180 (awarded)	500 (other)
total year income	1408	7684
expected year retirement	420 (state pension)	2280 (state pension)
sci. project money (non-inst. sources)	1800 (grant agency)	6000 (grant agency)
country average year income	996 (Russia)	4008 (Czechia)
above (just in science)	1125 (Russia)	
above (just in education)	454 (Russia)	3672 (Czechia)
district average income	720 (Novosibirsk)	5028 (Prague)
postgraduate fellowship (mean estimate)	180	1700

Let us draw some conclusions, e.g., average year incomes for countries of above mentioned

scientists together with advanced Western countries such as USA and Denmark and their relation to the ICTAC's annual membership and to ICTAC 12 conference fees.

country (average/*teacher)	Russia	Czechia	Denmark*	USA*
statistical mean income/year	996	4008	39 577	59 673
\$15 - ICTAC annual membership	1.5%	0.37 %	0,00038%	0.00025%
ICTAC 12 fees of \$470	47 %	11%	0.012%	0.0079%

One can see that the discrepancy is of a very high factor, true even for a senior, well-established scientists and become more pronounced for young scientists just starting their careers having income far below the average. This fact becomes most painful when trying to give all scientists (from the East, South and other developing countries) the same rights to take part in equal competition. One must consider additional factors associated with the purchase of costly instruments and, what is of our imminent interest herewith, the payments of fees to participate at international venues. *An adequate support of scientific activities, regardless of the economic restrictions due to country's political inequality, is thus an equally sensitive issue as the entire preservation of human rights. Within the United Nations the nation's economical inequality is eased by different level of tariffs (incomes and reparations) which is also common for different international conventions.*



Regarding the particular help of the ICTAC, the Easterners are happy to mention their highest appreciation to the individual approach of the past ICTAC president, Professor E. L. Charsley (UK). In the early nineties he covered the ICTAC collective membership for the

**Russian and Czechoslovak TA Societies from his own resources (book royalties).**

***(2) Comments specific to ICTAC 12***

**All the respondents involved in the comments below, expressed their deep thanks to the 12<sup>th</sup> ICTAC organizers for their diligent work and enthusiastic involvement. Some faulty orderliness, however, are necessary to mention as they did not find place in the self-recognition of the organizers.**

**There has been a widespread feeling that this ICTAC was a national instead of international conference and that it was preferably aimed to please the ICTAC executives. The choice of session, and workshop chairmen showed too much of a bias towards people from Scandinavian countries. Similarly the Western origin chairmen (97%) were preferred to the Eastern ones (3%) during the conference. The ICTAC executives were all selected to act as chairmen despite most of them did not even have their own scientific contribution (abstract). This negative impression should be comprehend and factual efforts should thus be made to include more international members on future congress organization as well as the program should be ruled from scientific and not societal aspects.**

**The high conference fees for ICTAC 12, that amounted to almost 500 US\$, was assumed to be due to the choice of expensive Copenhagen as a congress venue. It resulted in smaller number of participants from weaker economies, particularly countries in Eastern Europe, being less than 11% of the total, in contrast with the previous ESTAC 7 in Hungary, where parity was maintained with 57% Westerners against 43% Easterners. No reductions were made for the ordinary ICTAC 12 participants to enable economically disadvantaged scientists to participate. For example the Russian Fund of Fundamental Investigations (RFFI) can pay only travel expenses on competition terms and never pays accommodation and organizing fees. In some countries, mainly in Germany, it is a general practice to make price-reductions for this category of people (for example, see: <http://icct.chemie.uni-rostock.de/>). The organizers did not bother themselves to attempt any access to special funding for less-wealthy participants through well-established foundation sources (NATO, EU, etc). Invited lectures appeared chosen not on an adequately representative international distribution (and with respect to the previous events they use to have sometimes themes' repetitive character). These invitations should be always extended on purely scientific basis regardless of the national affiliation and ideally, this should warrant equal representation of East/West because of comparable number of star scientists on both sides. A suggested satellite conference to follow ICTAC 12 in some Eastern country (as to help those scientists who could not attend due to their insufficient funds, but who would be willing to come to cheaper venues) was not supported by ICTAC12th organizers.**

**The quality of the abstract book aroused much critical comment and is an embarrassment to its scientific contributors and co-sponsors (mentioned as HAAKE and Lundbeck A/S). All connected with this low quality publication deserve ICTAC censure and steps need to be taken to ensure the adequate quality of future similar publications. The book contains 299**

abstracts (and 7 workshop abstracts) of which 81 (27%) are incorrectly edited.

The main types of mistakes are following:

- not properly edited references,
- not marked in the text (abstracts on pp. 149, 245, 248, 249 and 273),
- without numbers (108, 109, 111, 119, 230, 258 and 266),
- not given at all ( 127, 157, 154, 238, 380),
- other mistakes (140, 203, 310),
- improperly formatted text (pages 151, 158, 163, 172, 173, 174, 176, 196, 199, 234, 239, 247, 267, 285, 287, 305, 311, 322, 327, 335, 337, 364, 368, 369, 372, 384),
- unreadable and/or missing figures ( pages 92, 93, 188, 218, 288, 292, 301, 317, 328, 370, 356, 370),
- misleading use of question mark such as, e.g., in the titles, names of the authors, formulas, and text (123, 147, 163, 175, 178, 187, 278, 300, 301, 302, 326, 331, 340, 341, 348, 358, 363, and 371).
- Additional confusion can be found on the page (v): the name of the Vice-Chairman of the 12<sup>th</sup> ICTAC is spelt in two different ways.
- Nineteen abstracts were printed twice and twenty abstracts were not included although correctly submitted in due time.
- There was a missing author index (that was published latter as a separate appendix).

Beside doubled abstracts published under different sections the book contained oddities with a totally changed title (“Rigation of phase equilibria in the  $V_2O_5$ -ZnO systeminvest”, p.137). There are abstracts containing nine question marks in the authors name (p. 302) and references moved to the next page and appended to the references of the following contribution (pages 157, 158). It is hardly acceptable that almost a third of the abstract book, prepared for a scientific international conference, contains improperly edited contributions. Such inefficient work was not, in a lot of convictions tolerable, as somebody has to pay such a high price for mistakes made by others. In fact the hard work of so many colleagues has been ruined, even in the relation with consequent economical difficulties in an appropriate defending results of scientific projects presented at the conference. There emerged even opinions that the book should have been reprinted or portion of fees returned as there might be excuses for financial problems, but not for a sloppy job. There was a proposal that the money paid for the book could be used to set up a fond to sponsor scientists from less economically fortune countries to attend next congresses. It was recognized that book format was not a mistake of computer’s fonts but a result of insufficient attention in reading the proofs.

There were many questions regarding ICTAC 12 pre-organization, namely:

- Why, during the submission of abstracts, (deadline 31st December 1999), did not the organizers offer a clear choice between poster and lecture? This would have avoided the empty spaces and consequent shifts in the program, as well as undesired embarrassment of the authors.

- Some abstracts were refused for acceptance because of the space deficiency, which discouraged some authors even from participation. In contrast, the abstract book contained as many as six abstracts for one (co) author, some of them bearing the same title, or others just subdivided into parts I and II.

- More than twenty abstracts were lost (curiously those that were submitted well before the initially planned deadline) including even the abstracts from prominent scientists. Two of them were never recovered and so they were not published at all.

- Two sets of additional abstracts were published as appendices. The first contained additionally submitted abstracts. Only in the second appendix the previously lost abstracts were published, shamefully as a result of the complaints of authors (the organizers were even not aware themselves that some abstracts were missing).

- A special example is the abstract by Dr. Subhash C. Mojumdardar that was lost twice and, after sending it for the third time, he was finally informed that his contribution had been chosen as a poster. He had paid the conference expenses from his own pocket (more than half of his year's salary) in the conviction that his oral presentation had been accepted. He would not have gone to the conference if he had known that his contribution had only been accepted as a poster.

- Not enough attention was given to helping and/or to easing visa procedures for scientists coming from some unsettled countries (Bulgaria, Yugoslavia).

In spite of the announced availability of four lunches, the one on Wednesday was given only to those participants who paid the extra charge of US\$ 45 for the Viking tour. The discounts promised by the official airline SAS to all conference delegates and accompanying persons, never happened, except apparently for a few prominent ICTAC persons, because SAS was mentioned in the front page of the abstract book as the co-sponsor of travel expenses for the organizers and president.

The actual conference program bore little resemblance to the first classification sessions, published in the second circular.

The poll election done by the ICTAC Kinetics Committee to find a plenary speaker in kinetics (ICTAC News 32/2 (1999) 14) was completely neglected without any apology to the honored person - Professor J.M. Criado. Such a missing plenary lecture was a severe program mistake, because during ICTAC 12 the most well-attended sessions were on kinetics. More space should have been given for presentations of new topics (e.g., energetic materials or non-traditional processing).

A definite confusion surfaced out from an automatic inclusion of ICTAC membership fees in the congress registration fees, even for those participants who had already paid their ICTAC membership. The situation needed clarification to all concerned and should match with the article written by the ICTAC secretary Dr. H.G. McAdie in recent ICTAC News 33/1, p.13. The conference fees should logically include the reduction for those participants who were already the ICTAC members as continuously repeated on the last page of every ICTAC News, citing "members of ICTAC receive reduced fees for ICTAC congresses".

There was a proposal that such an overlapping fees should be transferred to the funds created to support the next ICTAC Mackenzie lecture.

In general there is the unanswered question why ICTAC 12 was so expensive? It is important for future congresses that the proposed budgets be published for comments ahead of the actual congress. The actual accounts of congresses be similarly published as soon as possible so that ICTAC members are assured that their fees were well spent and that possible economies aspects can be identified for the future. It is disreputable that my legitimate demand to obtain the conference account just after the event was abruptly attacked with anger although this approach/demand is lawful at all Scandinavian countries. Unfortunately not having the required accounts, a rough budget estimate was done (in US\$) and compared with the previous ESTAC 7 (1998).

<i>subject</i>	<i>7th ESTAC'98</i>	<i>12th ICTAC'00</i>
abstract book (both » 400 pp)	incl (» 15 ?)	incl (» 20 ?)
proceedings (3 volumes)	incl ( » 30)	incl ( » 35)
ICTAC royalties	0	incl ( 25)
ICTAC membership	0	incl (60)
meal/lunch	incl (5 x)	incl (only 3 x)
concert	incl	sponsored by TA
welcome party	sponsored by Netsch	incl ( 2 drinks only)
external agency service	( 15% of fees, » 70)	(?>40% of fees, » 200)
excursion	28.5	45.5
banquet	incl	68.5
accommodation	incl	min 228 mean 456
apparent/actual fees	< 200	480
conference fees paid	484	480
total expenses (hotel)	512 US\$	1050 US\$
(lodge)		(min 820 US\$ )
fees discounts	available (20 cases)	non

The high cost of ICTAC 12 was thus not only caused by the high living costs in Denmark, but possibly also by the high commission paid to an external agency for taking care of the conference performance (simultaneously with the volunteers of the ICTAC 12 organizing committee). To decrease costs, more of the organizational work will have to be done using a larger team of experienced volunteers.

### *(3) Functioning of ICTAC*

*Do the awards reflect thermal analysis achievements?*

There are three purely scientific awards (namely the TA/ICTAC Award in thermal

**analysis, SETARAM/ICTAC Award in calorimetry and the Young Scientist Perkin Elmer/ICTAC Award) regularly issued every four years during the ICTAC conference after the selection procedure done by the ICTAC Awards Committee. Besides there are the societal awards (honorary membership award and the ICTAC distinguished service award) issued irregularly for recognition of good service to the Confederation, upon the recommendation of the ICTAC councilors and the council approval. During the last ICTAC council meeting it was argued that the second-type awards should not be mixed with the scientific (impact) awards. We, however, have to recognize that there is much less opportunity to receive the ICTAC scientific award (three persons in four years from a large number of scientists) than a societal award (from far fewer ICTAC officers). We should carefully reconsider what is more important for thermal analysis itself, whether scientific or societal progress. It was also mentioned that the rate of awards to Western scientists is higher in comparison with the awards given to other countries which, in a way, is understandable because of lower (negligible?) rate of these scientists' participation in the ICTAC officer's posts. It was proposed that all the procedures for all the awards be clarified and made publicly known bearing in mind that ICTAC is responsible for the progress of both the science of thermal analysis and the societal life of confederation - neither should be given the priority. In the same time we should also assure that the awards should not be mechanically distributed according to geographical, political, communal or any other non-scientific rules.**

### *Are works of committees efficient?*

**The results provided by committees were not under criticism accentuating its value requires grates appreciation. Dissolution and creation of individual working groups is accepted as it particularly helps to assure necessary scientific progress upon changes. Regarding the discussed relation of the West and East it can be only mentioned that there have been only few chairmen selected from the East but it is entirely effected by market - voluntarily offer to create and perform chairmanship of a group than by entire ICTAC council approvals. The only insufficiency can be mentioned in relation to a worldwider cooperation. No endeavor was made to incorporate the eastern thermoanalysts into truly international programs (NATO, EU Brussels or other Europe/US projects) neither there was an attempt to assist creation of an internationally coordinated workshop (NATO) to help Eastern colloquies to utterly participate.**

**The only remark received was directed back to the year 1992 where the nomenclature group was reorganized and when several previous members were sorrowfully discharged without a single word of thanks for their previously done service. With the election of the new chairman there, unfortunately, was suspended the long lasting activity aimed to create the concise Slavic thermoanalytical nomenclature turning thus out the previous results derisive (as the nomenclature was ready for publication in Bulgarian, Czech, Slovak, Russian, Yugoslavian and Polish languages). In a like manner there was no an ICTAC Commission feedback when the proposed workshop on advanced inorganic materials was**

suspended from the ICTAC 12 program although it was regularly announced in advance in ICTAC News (31/1999, p.96).

*Are the ICTAC travelling funds distributed fairly ?*

The travel fund is to financially support the officers to participate in the Council meetings, the Executive Committee meetings and the Business Session (as established in 1980). According to Minute 13 (1980), the maximum support shall be limited to the lowest round trip fare obtainable and the maximum money available for this purpose shall be an amount equal to the accumulated earning between 2 conferences on, 2000 US\$. In 1991, 2000 US\$ were increased to 3000 US\$ (see Minute 25 (1991)). For meetings in Balatonfured, 1500 US\$ were allocated to Prof. Gallagher and 1500 US\$ were carried forward without any conditions. These were decided by the Travel Fund Committee chaired by Prof. Ozawa (the members are Prof. Seifert and Dr. Odlyha.) and were approved by the Council. For meetings in Copenhagen, 4500 US dollars were available (including 1500 US dollars carried forward in Balatonfured). Total 3630 US\$ was used to support executives (beside subsidies provided by conference organizers). The responders do appreciate the past ICTAC president, Professor Ozawa (Japan) who during his twelve years term did not spend from the ICTAC funds a single penny (all his expenses he paid from his own fundings). On the other hand some responders were surprised that star scientists from the richer West could not find appropriate resources from their institutions (although the same attitude was asked to be proceeded by the poorer Easterners). To freely allocate this officer's fund, enabling its use for the recently (not approved) covering the conference fees, daily allowance, etc., the Minute 13 (1980) and the Statutes (III Administration 24) must be revised.

The decision of the ICTAC 12 council meeting to create a Task group on funding scientists from less economically wealthy countries was a positive start but somehow inefficient in actual helping individuals to find new domestic resources because everybody is well aware where to locate this money. In addition to seeking all possible support from external sources (EU, NATO, etc.), the possibility of establishing an entirely new fund within ICTAC itself is indispensable. With the ICTAC assets standing at in excess of a hundred thousand dollars another US\$ 3000 should be considered (to counterpart the above mentioned fund for the officers). This amount could be under the responsibility of this newly created ICTAC Task Group. Such a new fund could also be operated jointly with the next congress organizing committee, say together with another US\$ 3000 (contribution for the next ICTAC conference by sponsors). The total sum thus available, optimistically as much as US\$ 6000, could be used to support about ten scientists from economically less fortunate countries at least half of that (namely US\$ 3 000) provided by ICTAC. It should be preferably aimed to the younger scientists below 35 years. Such joint individual grants (< US\$ 600) would be given upon the presentation of a standard personal application to include several aspects of scientific achievements and societal and economic needs. This new travel fund could also be

supplemented by any profits resulting from preceding congresses.

*Should there be any compositional changes in the ICTAC council ?*

The voluntary work of the ICTAC secretary, Professor M. C. Brown, ICTAC treasurer, Professor P. K. Gallagher, ICTAC membership secretary, Dr. H. G. McAdie, as well as the Scientific Commission Chairman, Professor E. Gmelin, is greatly appreciated. In the view of the responders they do form the firm bases of the ICTAC survival and prospectus continuation. The election procedure for a new candidate of the ICTAC vice-president, however, should be made more objective and transparent, because it is a most important “honorary” post within ICTAC to continue for rather long subsequent service. Therefore the posts of these ICTAC officers should be periodically circulated over distinct societies (individuals) recruited from different countries. Criticism was raised that the last three presidential posts are from neighboring countries (England, France and Denmark) and that the selection was made mostly just upon the decision of the executive officers themselves. A new proposed procedure should be similar to the procedure used to select the venue of the ICTAC Congress, i.e., there must be several candidates proposed on various bases, including the open aim to have candidates circulating truly from different continents. One suggestion called all ICTAC members to be eligible to present nominations for this post. Then select, say, three nominees, who collected most nominations, put their names on the anonymous ballots, and distributed these ballots among the ICTAC members for voting. In this case we would always have a person who is widely known and his/her scientific results appreciated regarding his/hers scientific activities.

The minimum election modification, however, would require the proposed candidates to have their CV and program presented *a priory* and consequently defended (either in the written form or better verbally in front of the Council meeting). The council nomination committee (to consist of the ICTAC secretary, vice-present and past- presidents, together with the membership secretary, the chairman of the scientific commission and two additional, by affiliated societies elected, members would recommend from the proposals received three or minimum two most suitable candidates. The final election ought to be made by the council in a secret ballot.

Unlimited terms of the office for the other ICTAC executive officers is in contradiction to the only two terms permitted for Affiliate Councilors and the same measure should be applied in all cases. Whether the service terms of the four main volunteers (i.e., secretary, treasurer, membership secretary and chairman of the scientific commission) should be term-restricted is a very sensitive question because these four volunteers do the most demanding jobs. It would not be clear who would be willing to take over their tasks if their terms were time-limited but nobody is non-replaceable. So no recommendation of any restriction has been accepted and thus proposed. The functional term of affiliate councilors (chosen by individual societies who know best whom they want to stand for and for how long) must, at least, be modified to match the minimum three term’s duration of the elected

**officers.**

**It is also worth reconsidering whether 12 years honorary executive service is not too long for a fast advancing world of science including our thermal analysis. In most similar structures the chairmen are changed annually. Consecutively proposals emerged as to shorten the ICTAC functional period to half. It would mean that at every two years, during biannual council meetings, there would be election of the new ICTAC vice-president. Such a course would become acceptable if the above proposal (election via affiliated societies using Emails) would be put in operation. In the same time an additional representative may be allowed to emerge to represent the individual countries where are multiple societies. It is of interest for areas both in Europe (two TA groups in Poland or separate calorimetry group in Czechia) and USA (energetic calorimetry). Worth of considering there would be a creation of a new ICTAC officer post in order to have a speaker acting on behalf of the Eastern and developing countries. It would be desirable to ease tension (if the executive would not involve such representatives) and a new officer should automatically become an additional member of the council nominating committee to hold a function of a “secretary for international relations” (similarly to the notion „membership secretary“). His/her activity would be only single termed, just between the two consequent council meetings and would be selected solely from the Eastern and developing countries (if they were not otherwise represented in the executive).**

***Conclusion - is there anything which can be of benefit?***

**Evidently, there would be difficult to draw out any definite conclusion, as the above commentary is just a (hopefully valuable) collection of different remarks condensed under a unifying editorial view. It should best serve as an initiative to be appropriately considered in further steps to reach a weighty result. However, it is clear that some changes within ICTAC are inevitable and should be brought into action as soon as possible. Therefore these comments should be made publicly available and their discussion should be encouraged through the in-advance debate. This can assure that the councilors could have the matter discussed within circles of their affiliated societies and thus would become prepared and ready to undertake appropriate decisions at the next council meeting. Anyhow widespread discussion should be a standard approach in the powerful time of immediately available Email contacts. It makes possible that the individual issues can be analyzed between the ICTAC Executives, councilors, etc. far before it would be submitted verbally in the next ICTAC council meeting (to take place as soon as by the year 2002). The comments should be accepted without any *a priori* aversion or detestation assuring any of this view reach its destination (i.e., favorite looking for making a better societal progress). It is really worth of self-respect of all of us, particularly when carefully reading the recent ICTAC News, where we could not find any slight notice of a recollection of above mentioned problems (previously submitted to all members of the ICTAC executives as well as to ICTAC News). I should made it clear once more that all these comments and**

**suggestions have been submitted with the positive aim of improving our congresses, the functioning of our council and confederation as well as the positive perceptions of our members coming from all countries. In the same way all those who may feel offended by the inherent critique should afford themselves a positive access to its ideas involved. Anything can be hardly acceptable if we would generally assume *a priori* that any of a contradictory process of reviewing can be seen unwanted if presenting any critical study of the reviewed action (such as report, article, book, conference, behavior, etc.). Consecutively anything could be postulated delicate on basis of any artificially presented personal reasons and the reviewed comments can be always declared dangerous to public and thus worthy of hiding.**

**On behalf of responders**

**Jaroslav Sestak**

**V strani 3, CZ-15000 Prague 5, Czech Republic  
Email: *sestak@fzu.cz* , Fax: (+420) 2 33343123184**

**[1] Sestak's letter to the ICTAC Council 2000,**

**[2] J Thermal Anal 40(1993)1296**

**[3] ICTAC News 32/2(1999)56**

**[4] J Thermal Anal 39(1993)929**

## **Letter to the ICTAC Council, ICTAC 2000**

***c/o ICTAC Secretary, Professor Michael E. Brown***

***June 6th, 2000***

**Dear Gentlemen,**

**Fifteen years ago I was chosen to be responsible for the scientific program of the 8th ICTA in Bratislava'85. At that time its organization was under a close watch, impact and control of therewith communistic bureaucracy and I was subjected to a strong political press as to give a definite preference to the Eastern European scientific community (VIP) in the so called „socialistic era“ of divided world. Moreover and in the same time, the ICTA meeting was the anniversary 10th Czechoslovak conference on thermal analysis and there was a striving decision to preferably secure the posts of session chairmen by Czech and Slovak specialists. I energetically refused such a deficient political interference although I was accused of non-loyalty almost under a discipline execution and next to be recalled off my duty. I, however, survived thank to countless saying that ICTA is *an international organization serving equally the West and the East* and thus all the scientific posts, chairmanships and services must be distributed equally regardless the origin of the scientists and country's policy. Thus I was happy to pioneer the introduction of various workshops. I gave chance the presentations of the western ideas so far not popular by the**

eastern socialistic ideology. I succeeded to open the contents of this ICTA conference to yet untraditional themes to broaden TA range of vision (e.g. history by Mackenzie, UK, bibliography by Fiala, Czechia, kinetics by Jesenak, Slovakia or instrumentation by Murphy, USA). Furthermore we were succesful to persuad the Czechoslovak authorities to pay for the ICTAC Council meeting, see photo. In view of that I was glad to hear thanks from the both sides of the „iron curtain“ for my courageous opposing any political segregation as well as for securing adequately objective scientific program. I was proud for defending my identity within my „international“ standpoint (hopefully continuing it until now).



*How young we were during the 1988 ICTA Council meeting that took place at the miraculous historic residence - chateau "Liblice" near Prague. Among others we can recognize (from the left): Prof Charsley (present ICTAC Past-president), late Profs. Eysel, Lazarev and Garn, Profs. Flynn, Gallagher (Treasurer), Seifert and Warne (former Presidents), Profs. Balek, Hucl, Sestak and Rosicky (ICTA 8<sup>th</sup> organizers), Profs. Heide and Della Gatta. The three days meeting of councilors and distinguished guests was for them free (as fully sponsored by the Czechoslovak Academy of Sciences). In spite of high political tension uneasy financial transfers (between the antagonistic East to standard West) the flawless performance of the 8<sup>th</sup> ICTAC conference held afterwards in Bratislava (Slovakia) passed without complains and minutes. The conference budget was agreed at once and was never asked for revealing by the ICTAC councilors for any further record.*

**In this light I feel to be sufficiently accomplished to make an account for some remarks learned from my Eastern fellow scientists worth of intermediating herewith. Any conference is done in the best will of the organizers and I am sure that it was also the case of the ongoing 12<sup>th</sup> ICTAC. I am afraid, however, that any hiding critical comments so far voiced would be harmful and on their behalf I venture to ventilate following notes:**

**The ICTAC 12<sup>th</sup> conference fees were insensitively adjusted to fit the „richer“ Westerners on account of fewer accessibility of the neighbor Easterners (as its \$ 500. - represents just few days salary of the Western scientists in contrast to more than a monthly payment of the Eastern scientists). The ICTAC 12<sup>th</sup> international organization committee was nominated and composed only from the Western scientists that may appear as underestimating the role of Eastern thermal analysis within the entire Europe where the conference was sited. During last two decades such a standpoint has also been sensed in the composition of ICTAC council officers that apparently may need a correction as to install continuous representation from the Eastern Europe and developing countries (included into the executive council officers). Similarly, the session workshop chairmen were also selected from the Western Europeans only, most exclusively chosen from the Scandinavia, giving in the same time a strong preference to the local Scandinavian thermoanalytical meeting before that (to be held on a desirably internationally worldwide level). Invited plenary lecturers were again selected only from the Western Europeans, moreover noting certain accentuation of calorimetry as a major subject (so that a specified prominence was given to one fraction of thermal analysis although calorimetry is only a part of thermal analysis not its partner).**

**No regards nor concern was given for the need of the Eastern scientists to have some invited activity at the conference which could ease their admission to their domestic financial grants as obvious condition for recovering conference funding. The organizing committee neither provided any steps as to assure certain foreign financial support for helping more Eastern scientists to travel and/or participate at the ICTAC 12<sup>th</sup> that is conveniently done by traditional applying for well-acquainted grants/projects at the international organizations (Brussels EU, NATO, etc.) nor gave surety to a certain availability of discounts.**

**Despite already published announcement in the ICTAC Newsletter the ICTAC 12<sup>th</sup> organizing committee neglected the recommendation of the working groups. The plenary lecture on kinetics (pre-announced in ICTAC News 32/2 (1999) p.14) was not included nor the workshop on inorganic materials (ICTAC News 31/1999, p.96). It appeared somehow strange having the subject of inorganic materials further unnecessarily divided into the session on ceramics/metallurgy and superconductors while the entire session on theory/kinetics was not included at all.**

**Inclusion of ICTAC membership into the ICTAC 12th conference fees represented another problem for some Eastern scientists (when asking for a consequent fees refund) and**

the absence of reduced fees for the ICTAC members was very unusual regarding the announcements in ICTAC News as well as for a standard conference tradition. The idea of an Eastern satellite conference proposed by some Czech enthusiasts in order to help to transfer ICTAC results to those thermoanalysts who were unable to pay too high fees at the Western side (likely to take place together with the active Solid State Chemistry Symposium in Prague September 9<sup>th</sup>, 2000) was rejected by the ICTAC 12<sup>th</sup> organizers.

I, by no means, blame the organizers for anything purposeful and above lines should be taken only on friendly bases. I, however, am afraid to add that I heard some indications noting that such an approach could be regarded as a certain sign of unwelcome underestimation (or even unintentionally imposed discrimination) of the Eastern European thermoanalysts particularly at that moment when the ICTAC is being held in the Central Europe under a close contact and easy reach of Eastern science where thermal analysis has also very strong groundwork, ample communion and often excellent results acknowledged not only in the Eastern Europe. Although the progress tends to the United Europe certain economic discrepancy would likely survive for long which is leftover from the era of communism when this disparity was accepted with polite curiosity and often subjected to mercy help. However, any prolonged financial disconnection of the Eastern thermoanalytical world would certainly stay against the joined European goal as to *provide all scientists the same access to science* and may unfortunately result in the boundary act of unwanted formation of either the Eastern branch of ICTAC or even a separate society to oppose the ICTAC as a *club* for richer Westerners. The same applies in a transferred measure to the other thermoanalytical spheres of developing countries.

We should do all available steps to firmly avoid any confrontation trying to help better communication by, e.g., above mentioned incorporation of an ICTAC officer for the Eastern thermal analysis affairs, establishing a committee on providing a better financial support and create a grant cooperation for the thermoanalysts from developing countries within ICTAC foundation, etc., etc..

I would like to suggest to have such related points included into the agenda of the ICTAC Council meeting.

With best regards

Sincerely Yours

*Prof. Jaroslav Sestak, MEng, PhD, DSc.,  
ICTAC Councilor for the Czech Republic*

*Review Article*

## **THE INTERNET REVOLUTION – CAN WE BETTER UNDERSTAND EACH OTHER?**

*by Jaroslav Sestak,*

### *Collaboration not Confrontation– the Key to Innovation*

**It is a well-known opinion that collaboration provides exciting chance for research and understanding which could not be realized in the past by individuals working alone. But collaboration presents new issues to be addressed as we design new environments for this cooperation [1]. The key is to identify how truly "great" collaborations materialize. Nowadays, it is clear there are not as many brilliant individuals as there are brilliant collaborations. In considering collaboration, one must deal with issues involved in the inter-relationships among the individuals in a particular group activity. For example, how can the system reduce friction that may develop between two persons or groups? The value added to a project by collaboration is not only found in the replication of information for each participant, but more importantly, the type of people who use the system. The kind of networks we require depends on what type of experts we want to draw together. People are information processors, but if you define them as such, you end up with a warped sense of what people are really all about. As we change the quantity and quality of people with information, we change the quality of their behavior. This seems rational, but if you think about it, if information was really the most valuable and important thing, the people who run our organizations would be the smartest - that clearly is not the case. Some other variable must be making the impact - and that variable is intelligence - one of the few elements of modern mankind that cannot be distributed democratically. For example, people smoke, even though they know they shouldn't; people drink and drive, even though they know better. One of the most important design shifts is that we must structure information not for itself, but for its effect on relationships? We are moving from "creative individuals" to "creative relationships" - the source of information. The real value of a medium lies less in the information it carries than it does in the communities it creates. The Internet as an information tool is as much a medium of community as it is a medium of information retrieval. Consider Gutenberg in the 15th century. At the time, the new medium was movable type. The Bible was the first book ever published and became the medium of the community. During the Reformation, alternative understanding and interpretations of the Bible developed simply because of its wider distribution through the society of the time. During the past century free radio and TV access helped to dismantle communistic totalitarian governments and recently, without a freely distributed information the military force acting on the invalidation of Taliban would not reach its success so fast. History clearly says that any society authoritarian leadership is sensitive to its extermination or, at least, reformation when opens to free discussion and any of such an autocrat authority is thus afraid to let uncensored information stretch.**

**The results of successful collaborations in the past are many: the airplane and the atomic bomb, thermodynamics and quantum physics, the double helix and personal computers, even the Internet was originally a tool to help physicists collaborate.**

**Collaboration consists of several aspects [2]: Communication = an essential ingredient but not a synonym; bandwidth does not control success; Participation = a means to the end; a required attribute, but again, not a synonym and Process = a shared creation/discovery in which the individuals could not have done it alone. Watson and Crick both said they could not have come up with the double helix working alone. They are geniuses individually, but the problem was bigger than either of them could solve working in isolation. The value came from their interaction and technology now allows more people with more information to interact. A key element of all success is "shared space". "Shared space" is needed to create "shared understanding". The properties of the environment shape the quality of the collaboration. Chalkboards have limits for example, but computers present many more possibilities. We can scale "shared space" by making it intelligent - perhaps we need to think of the computer as a facilitator. Intelligence is derived and applied in a myriad of ways [3]. Sometimes we must recognize that others have more intelligence than we do – sometimes we must realize that we hold the key to success if we could just convince others that this is the case. Communication is an act of intelligence, but often the final and/or initial legs of the communication link become "fuzzified" and the message does not get sent or received as intended. The "quality" of the intelligence becomes muddled.**

**It is at these times, that we must regroup in our own mind and attempt to examine the issues in a fresh manner trying to see the other person's viewpoint. Collaboration is much more than sharing workspace and experiences. Collaboration, by its very nature, is a form of intelligence on its own – the process of collaboration is as important as the starting point and the end. If we can keep this in mind, then we may be able to achieve the "greatness" that comes from great collaboration. Have you ever met or worked with someone with whom you seemed able to communicate with by telepathy – someone who was able to anticipate your ideas and needs and vice-versa. It is a wonderful thing to find someone with whom you are "sympatico". It might be your spouse or a close colleague or a son, daughter or other close relative. It may be a friend who shares common values, interests, skills, etc. The basis for the closeness can be many different things. The question is – "Can we create or even, hope to create, such closeness over the Internet?"**

### ***A Brief History of the Internet -The Network Uprising***

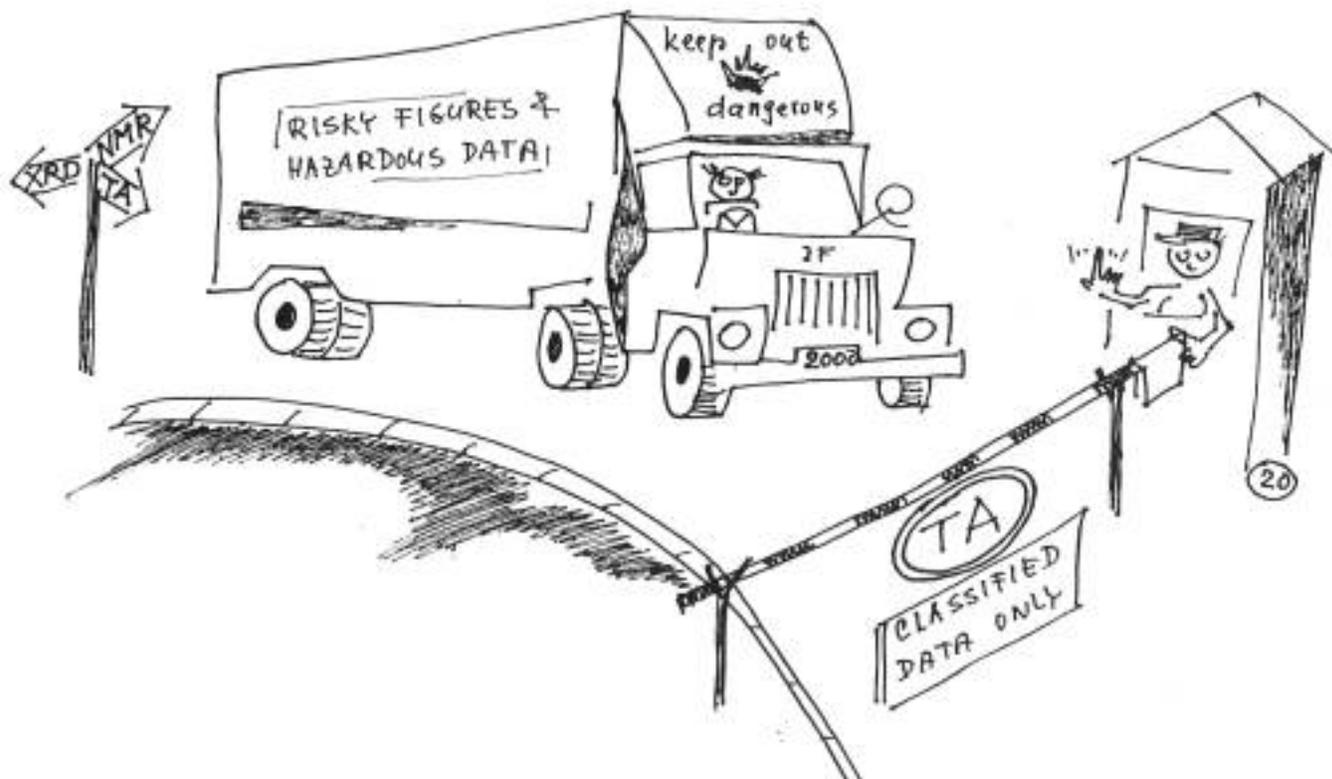
**But if we want to predict the future and understand what is likely to be upon us, it is necessary to step back and examine the most important revolutionary technology to ever appear on Earth. What is the Internet and from where did it come? Some will talk about AOL or Microsoft as if they are the same thing as the Internet, others will refer to pornography and dangers inherent on the "Net" from this dark side of society. Throughout the history of humanity, there have been many significant revolutions, such as the Renaissance and the Industrial Revolution [4], that permanently changed how people lived their lives. But none of these changes has occurred as quickly, as universally and as unceremoniously as the Internet Revolution. The Internet affects every corner of our world**

**in profound ways - at home, at school, and at work - our lives are different, not necessarily better, but certainly different, as we move into the Information Age. The motto of the Information Age is "Information is Power" and if this were true, then we are the most powerful generation who ever populated the face of the Earth. From simple words to the latest hit-song to the ingredients required in a favorite recipe to how to make a pipe bomb, there is almost nothing you cannot find out about with a little effort and access to the World Wide Web. In the early days of the 90s, many businesses had to be forced to adopt Internet-based technology. But today, companies involved in mining, manufacturing, transportation, communications, etc. are now using the Internet routinely since the benefits are so self-evident. Businesses, such as bookstores, are not necessarily located down the road anymore, they can now be found online. It is worth recognizing that an Internet-based business can market their products globally without needing an actual store - they only require good distribution channels. The Internet automates many business processes and transactions; it reduces costs; opens up new markets; and empowers customers and potential customers in ways that couldn't even be imagined 10 years ago. The Internet allows small businesses to compete with large corporations, provided that a professional online presence is developed and maintained. We can communicate almost instantly with anyone in the world, whether it is with family or friends abroad or business associates. Letters and Faxes of yesterday are now the Emails of today.**

**Anyone who uses the Internet, cannot fail to be impressed with its power, but how did it all come about... ? In order to understand where we might be going, it is useful to briefly explore its history. In 1958 the US Department of Defense formed the Advanced Research Projects Agency (ARPA) to enhance the dominance of the United States in military science and technology. ARPA (later to become DARPA) was formed in direct response to the launching of the Russian satellite Sputnik in 1957 – an event which made the United States military sit-up and take notice. The first references to the social interactions that could be enabled through networking was written by J. Licklider of MIT in 1962 [1] in which he discussed his concept of a "Galactic Network". He envisioned a globally interconnected set of computers by which anyone could access data and programs anywhere in the world, much like the Internet of today. Licklider was the first head of the computer research program at ARPA and he was able to convince his successors of the importance of this networking concept. By 1965, while trying to establish efficient communications systems, ARPA developed the concept of a distributed network. A study on networked time-sharing computers, was conducted using three computers that communicated with each other over a 1,200 bps phone line: one at ARPA headquarters, a second at MIT and another across the country at Systems Development Corporation in California. This led to the initial design of what would become ARPANET [4].**

**In 1968 when ARPANET merged with ARPA a contract was let to a company known as BBN to build the Interface Message Processor (IMP) network in which 4 IMP nodes connected computers over 50 kbps phone lines. As ARPANET grew in the 1970s,**

other independent networks sprung up that would later be connected to it. 1971 saw the first inter-machine message transfer which was then implemented on ARPANET in the following year, along with the introduction of the @ symbol in the address scheme. Much larger configurations of up to forty machines were demonstrated and other countries began to develop their own versions of ARPANET. Specifications for Telnet were devised in 1972. The year 1979 saw the invention of USENET - a system of newsgroups which quickly grew to become the main way that university students and researchers communicate and share information on subjects of all sorts. The early 1980s saw a period of rapid network expansion around the world. Networks appeared based on the specifications of the 70s and many of the older networks began to change from independent entities to cooperating nodes in what was now an International network. Year Number of hosts Innovation progressed as follows: 1968 (10 links) ARPANET, 1978 (100) USENET, 1988 (100,000) World Wide Web/HTML and 1998 (100,000,000 links) first software agent. In 1993, a company, called Internic, was created to manage the Internet through services contracts with AT&T, Network Solutions, and General Atomics. In each successive year, more and more countries established connections to the network making it a truly worldwide network. HTML has now become the main standard for delivery of the hypertext approach to information originally envisaged in 1945 by V. Bush, a system he called Memex [1,4]. The potential of this new medium was quickly realized. In 1993, Mosaic (the first real web browser which evolved into Netscape) experienced unbelievable growth as more and more people went online. The Web continued to expand, and in 1994, the first e-businesses opened, the first cyber-banks appeared and ".com" became the most popular, sought-after domain name extension. By 1995, use of the Web surpassed that of FTP. With the increased demand, authorities began to charge to register a domain name. A most notable innovation was the development of search engines, by which one can find information from all over the world.



### *Web-searching for information*

#### *- Actual chemical and thermochemical addressers*

On the WEB sites there are various publication with enormous amount of chemical data. Existing addressers provide electronic mapping from various angles that are continuously created and overturned. Experience shows, however, that sometimes it is helpful to retail on the classical printed forms and has the files ordered in readable way enabling notes, recollecting new sources, and predetermines the procedure of searching.

Following the excellent article by D. M. Price [5] that show how the web-sites can used within our thermoanalytical interest there is presented a list of most useful electronic sources in generalized field of chemistry. It is organized in domains of application stressing out the aspect of thermochemistry. It is understandable that the addressee conferred is not complete but would serve as a source of ideas and consequent examination vehicle. Most customarily it can be find useful if the searched information is not specified exactly, is known within a certain domain, and/or is representable in some key words.

#### *a) Independent chemical addressers*

<http://www.chemindustry.com> (ChemIndustry, "Yahoo of Chemistry")

<http://www.claessen.net/chemistry/> (Rolf Claessen's Chemistry Index)

<http://www.liv.ac.uk/Chemistry/Links/links.html> (Links for Chemists)

<http://www.chem.ucla.edu/chempointers.html> (WWW Chemistry Resources)

<http://www.chemsources.com/chemlinks.html> (Links to Chemistry Sites)

<http://www.chemsoc.org/crl/links.htm> (Weblinks)  
<http://www.chemdex.org> (Chemdex)  
<http://www.chemie.de> (Chemie.de Chemistry Internet Information Server)  
<http://macedonia.nrcps.ariadne-t.gr/chemistry/> (Inst. of Physical Chemistry, Athens)  
[http://www.chemie.fu-berlin.de/chemistry/index\\_en.html](http://www.chemie.fu-berlin.de/chemistry/index_en.html) (Chemistry Index)  
<http://library.adelaide.edu.au/guide/sci/Chemistry/> (Adelaide University Library)  
<http://www.chem.ucla.edu/chempointers.html> (The World-Wide Web Virtual library)  
<http://www.cfsan.fda.gov/~dms/chemist.html> (Chemistry Information via the Internet)  
<http://hackberry.chem.trinity.edu> (Trinity University Cheminformatic Site)  
[http://netaccess.on.ca/~dbc./cic\\_hamilton/other.html](http://netaccess.on.ca/~dbc./cic_hamilton/other.html) (systematic classification)  
<http://www.einet.net/galaxy/Science/Chemistry/> (source systematic classification )  
<http://chemistry.gsu.edu/links.html> (Georgia State University for Chemists)  
<http://www.scitech.cz/stlinky.htm> (Scitech, Czech systematic)  
<http://www.upce.cz/~slchpl/chemie.htm> (University of Pardubice, Czech product)  
<http://www.indiana.edu/~cheminfo/> (Chemical Information Sources, Indiana Univ.)  
<http://www.library.ucsb.edu/subj/chemistr.html> (InfoSurf, University of California)  
<http://www.chinweb.com> (ChIN, The Chemical Information Network)

*b) Chemical addressers, searching tools:*

<http://www.scirus.com/?C> (Info-location engine, topical search)  
<http://dir.hotbot.lycos.com/Science/Chemistry/> (HotBot)  
<http://directorysearch.netscape.com/Science/Chemistry/> (Netcenter)  
<http://dmoz.org/Science/Chemistry/> (Open Directory)  
<http://dir.yahoo.com/Science/Chemistry/> (Yahoo)  
<http://www.alltheweb.com> (All the Web)  
<http://www.google.com> (Google)  
<http://www.37.com> (Meta37)  
<http://www.metacrawler.com> (MetaCrawler)  
<http://www.altavista.com> (AltaVista)  
<http://infoseek.go.com> (InfoSeek)  
<http://hotbot.lycos.com> (HotBot)

*c) Topical information sources:*

<http://www.med.umich.edu/biochem/enzresources/> (enzymology)  
<http://www.chemical-stoichiometry.net> (stechiometry)

<http://www.csch.cz/enter.htm> (“green” chemistry)  
<http://electrochem.cwru.edu/estir/> (elektrochemistry)  
<http://www.che.ufl.edu/www-che/> (chemical engineering)  
<http://www.rapra.net> (polymers)  
<http://www.ccl.net/chemistry/> (computer chemistry)  
<http://www.combichemlab.com> (combinatory chemistry)  
<http://indigo.lib.lsu.edu/sci/chem/internet/chemical.html> (chemie & biochemie)  
[http://www.indiana.edu/~cheminfo/ca\\_acc.html](http://www.indiana.edu/~cheminfo/ca_acc.html) (analytical chemistry)  
<http://www.wsu.edu/~wherland/> (inorganic chemistry)  
<http://indigo.lib.lsu.edu/sci/chem/guides/srs105.html> (inorganic chemistry)  
<http://www.libs.uga.edu/ref/ecolib.html#databases> (ecology)  
<http://mcb.harvard.edu/BioLinks.html> (biochemistry)  
[http://www.netaccess.on.ca/~dbc/cic\\_hamilton/bio.html](http://www.netaccess.on.ca/~dbc/cic_hamilton/bio.html) (biochemistry)  
<http://sgi.bls.umkc.edu/biolinks/> (biochemistry)  
<http://www.library.musc.edu/resources/biomed/biochem.html> (biochemistry)  
<http://www.horizonpress.com/gateway/genome.html> (Genomes and Databases)  
<http://users.pandora.be/synthesis/worgche.html> (organic chemistry)  
[http://chemistry.gsu.edu/post\\_docs/koen/wdetail.html](http://chemistry.gsu.edu/post_docs/koen/wdetail.html) (organic chemistry)  
<http://members.aol.com/chromgroup/links.htm> (chromatography)  
<http://www.ncbi.nlm.nih.gov> (biotechnology)  
<http://www.ilpi.com/msds/> (MSDS)  
<http://www.chemheritage.org> (history of chemistry)

*d) Chemical clubs, Chemical and Thermochemical Societies and Centers*

<http://chemweb.com> (ChemWeb)  
<http://www.chemclub.com> (ChemClub.Com)  
<http://www.chemnews.com> (ChemNews.Com, information and education)  
<http://www.piug.org> (PIUG, Patent user group)  
[http://www.claessen.net/chemistry/base\\_en.html](http://www.claessen.net/chemistry/base_en.html) (survay club)  
<http://www.acs.org, pubs.acs.org> (American Chemical Society)  
<http://ecs.tu-bs.de/ecs.html> (European Chemical Society)  
<http://www.chemsoc.org/networks/ENC/fecs.htm> (European Network for Chemistry)  
<http://www.rsc.org> (Royal Society of Chemistry)  
<http://www.chemistry.or.jp/index-e.html> (Chemical Society of Japan)  
<http://www.georgetown.edu/earleyj/ISPC.html> (International Society for the Philosophy of Chemistry)

<http://www.csch.cz> (Czech Chemical Society)  
<http://www.gdch.de> (Gesellschaft Deutcher Chemiker)  
<http://www.kemisk-forening.dk/> (Danish Chemical Society)  
<http://www.sfc.fr> (Société Francaise de Chimie)  
<http://ozchemnet.adfa.oz.au/FACS/> (Federation of Asian Chemical Societies)  
<http://www.epa.gov> (EPA, Environmental Protection Agency)  
<http://www.combichem.net> (chemical information center)  
<http://toxnet.nlm.nih.gov> (Toxicology Data Network)  
<http://www.ccl.net/chemistry/> (computation chemistry)  
<http://www.molmall.org> (Rare Chemical Samples Exchange Center)  
<http://airsite.unc.edu> (atmosphéric chemistry)  
<http://www.cefic.be> (CEFIC, European Chemical Industry Councils)  
<http://www.iinet.net.au/~chemist/> (Industrial Chemist&Consultant)  
[http://www.claessen.net/chemistry/award\\_en.html](http://www.claessen.net/chemistry/award_en.html) (Top 5% Chemistry Site)  
<http://chem.sis.nlm.nih.gov/chemindex.html> (center of information services)  
<http://www.us.iucr.org> (International Union of Crystallography)  
<http://www.iupac.org> (International Union of Pure and Applied Chemistry)  
<http://www.censa.org> (Collaborative Electronic Notebook Systems Association)  
<http://www.chem-structure.org> (Chemical Structure Association)  
<http://www.aocs.org> (American Oil Chemists' Society)  
<http://www.surfactants.net> (The Surfactants Virtual Library)  
<http://www.aiche.org> (AIChE, AmeArican Institute of Chemical Engineers)  
<http://www.nist.gov> (NIST, National Institute of Standards and Technology)  
[www.ictac.org](http://www.ictac.org) (ICTAC Confederation)  
[www.natasinfo.org](http://www.natasinfo.org). (North American TA)  
[www.rsc.org/lap/rsc-com/dab/ana012.htm](http://www.rsc.org/lap/rsc-com/dab/ana012.htm) (UK thermal analysis)  
[www.ctm.cnrs-mrs.fr/afcat/](http://www.ctm.cnrs-mrs.fr/afcat/) (French-Switzerland TA)  
[www.erostar-science.org/STK.htm](http://www.erostar-science.org/STK.htm) (Eurostar TA society )  
[www.gefta.uni-freiburg.de/index.htm](http://www.gefta.uni-freiburg.de/index.htm) (German TA)

*e) Servers to multiple databases access:*

<http://www.chemweb.com/databases/> (Beilstein Abstracts, NCI-3D, Medline, NMR Spektra ACD Labs )  
<http://sis.nlm.nih.gov> (Special. Info-Service at NLM, ChemID, TOXNET, HIV/AIDS)  
<http://www.ncbi.nlm.nih.gov/Database/> (National Center for Biotechnology Inform.)  
<http://www.epa.gov/enviro/> (EPA Envirofacts, environmental database)

- <http://www.ccohs.ca> (Canadian Center for Occupational Health and Safety, MSDS)
- <http://esc.syrres.com/interkow/onlinedb.htm> (environmental database)
- <http://www.nist.gov/srd/online.htm> (spectra database, thermochemistry)
- <http://igm.nlm.nih.gov> (National Library of Medicine)
- <http://gateway.nlm.nih.gov> (NLM Gateway, biomedical database, Medline, Dirline, HSR, AIDS, Locator)
- [http://www.nist.gov/public\\_affairs/database.htm](http://www.nist.gov/public_affairs/database.htm) (Institute of Standards and Technology, reference database)
- <http://mole.icm.ac.cn> (database of chemical engineering)
- Aldrich** <http://www.sigma-aldrich.com> (catalogue of chemicals)
- Acronyms** <http://www.chemie.de/tools/acronym.php3> (acronyms, abbreviations of compounds, 12 000 files)
- Beilstein Abstracts** <http://www.chemweb.com/databases/bel/badisplay.exe?jcode=belaba> (abstracts since 1980)
- Bio-RadFD** <http://www.fluorescence.bio-rad.com> (Bio-Rad Fluorescence Database)
- CCCBDB** <http://srdata.nist.gov/cccbdb/> (NIST Computat. Chem. Compar. and Benchm. Dabase, thermochemistry)
- CDF** <http://www.ornl.gov/TechResources/cdf/hmepg.html> (Chemical Dictionary File, 28 000 compounds)
- Chem.Com** <http://www.chem.com> (commerce chemicals, 127 000 files)
- CHEMCYCLOPEDIA** <http://pubs.acs.org/chemcy/> (CHEMCYCLOPEDIA Online, commerce chemicals)
- ChemExper** <http://www.chemexper.be> (ChemExper, 70 000 compounds)
- ChemFinder** <http://www.chemfinder.com> (ChemFinder.com, 75 000 compounds)
- Chem-HS** [http://ntp-server.niehs.nih.gov/Main\\_Pages/Chem-HS.html](http://ntp-server.niehs.nih.gov/Main_Pages/Chem-HS.html) (2 000 compounds, health and security)
- ChemID** <http://chem.sis.nlm.nih.gov/chemidplus> (ChemID Plus, 352 000 compounds)
- CHEMINDEX** <http://ccinfoweb.ccohs.ca/chemindex/search.html> (database reference, 200 000 files)
- Chem-Ph** <http://www.chem.brown.edu/chem-ph.html> (preprints of chemical physics)
- ChemScope** <http://www.chemscope.com> (biofarmaceutical products)
- CMP** <http://www.colby.edu/chemistry/cmp/cmp.html> (phys. chem. properties of org. compounds, 2500 files)
- CODATA** <http://physics.nist.gov/cuu/Constants/index.html> (CODATA, phys. const.)
- DrugApprovals** <http://www.fda.gov/cder/approval/index.htm> (CDER New and Generic Drug Approvals)
- DrugDataBase** <http://chrom.tutms.tut.ac.jp/JINNO/DRUGDATA/00database.html> (Drug Data

Base, medicals)

**DrugInformation** <http://www.nlm.nih.gov/medlineplus/druginformation.html> (MEDLINEplus, medicals)

**ECDIN** <http://ecdin.etomep.net> (Environmental Chemicals Data and Info-Network)

**EFDB** <http://esc.syrres.com/efdb.htm> (Environmental Fate Data Bases)

**EPA** [http://www.epa.gov/enviro/index\\_java.html](http://www.epa.gov/enviro/index_java.html) (EnviroFacts)

**Espacenet** <http://ep.espacenet.com> (European Patent Office, patents)

**ETD** <http://plumbum.ceu.cz/ETD/default.htm> (ekotoxicology, 28 000 files)

**FPC** [http://www.chemie.fu-berlin.de/chemistry/general/constants\\_en.html](http://www.chemie.fu-berlin.de/chemistry/general/constants_en.html) (Fundamental Physical Constants)

**GenBank** <http://www.ncbi.nlm.nih.gov/Genbank/index.html> (gens)

**GDB** <http://www.gdb.org> (gens)

**HerbMed** <http://www.herbmed.org> (herbs)

**HSDB** <http://chem.sis.nlm.nih.gov/hsdb> (Hazardous Substances Databank)

**Klotho** <http://www.ibc.wustl.edu/klotho/> (Biochemical)

**MatWeb** <http://www.matweb.com> (materials, 24 000 files)

**Medline** <http://www.ncbi.nlm.nih.gov/PubMed/> (MEDlars onLINE, bibl. 11 mil. cit.)

**NCIDB2** <http://131.188.127.222/ncidb2/> (Enhanced NCI Database Browser, 25 000 compounds)

**NCI** <http://nci.chemfinder.com> (NCI database of compounds)

**NCI-3D** <http://chem.sis.nlm.nih.gov/nci3d> (126554 3D-structures)

**NDB** <http://ndbserver.rutgers.edu> (nukleic acids)

**OrangeBook** <http://www.fda.gov/cder/ob/> (Electronic Orange Book, Approved Drug Products)

**OrgSyn** <http://www.orgsyn.org> (Organic Syntheses on-line)

**PhysProps** <http://esc.syrres.com/interkow/PhysProp.htm> (phys. chem. properties, 25 000 entries)

**PhysRefData** <http://physics.nist.gov/PhysRefData/contents.html> (Phys. ref. data)

**PDB** <http://www.rcsb.org/pdb/> (Protein Data Bank - formerly Brookhaven)

**PSD** <http://pir.georgetown.edu/pirwww/search/textpsd.shtml> (Protein Sequences Database, 217 000 files)

**PubList** <http://www.publist.com> (The Internet Directory of Publications, database of periodics with 127 000 files)

**SciQuest** <http://www.sciquest.com> (SciQuest, laboratory equipment)

**SDBS** <http://www.aist.go.jp/RIODB/SDBS/menu-e.html> (spectral, 30 000 files)

**SIRI** <http://siri.uvm.edu/msds> (MSDS archiv)

**SolvDB** <http://solvdb.ncms.org/PROP01.htm> (solvents, properties files)

**SREV** <http://www.chem.leeds.ac.uk/srev/srev.htm> (review articles organic chemistry)

**Sugabase** <http://www.boc.chem.ruu.nl/sugabase/databases.html> (sacharids and their NMR

spectra)

**TheAcronym** <http://129.79.137.107/cfdocs/libchem/titleu.cfm> (abbreviations, 12 000 entries)

**TOXNET** <http://toxnet.nlm.nih.gov> (Toxnet, dangerous compound)

**Uncover** <http://uncweb.carl.org> (Uncover Database, bibliography since 1988, 18 000 journals, 8.8 mil. of citations)

**USPTO** <http://www.uspto.gov/patft/> (USPTO Web Patent Databases, US patents)

**VisElements** <http://www.chemsoc.org/viselements/> (periodic table of elements)

**WebBook** <http://webbook.nist.gov/> (NIST Chemistry WebBook, thermochemical)

**WebElements** <http://www.webelements.com/webelements.html> (periodic table of elements)

**WebMolecules** <http://www.webmolecules.com> (WebMolecules, molecular models, 220 000 files in 3D)

**WebOfScience** <http://wos.cesnet.cz> (ISI, bibliography since 1980, 5600 journals, 16 mil. of citations)

**WebReactions** <http://WebReactions.org> (chemical reactions)

*f) Thermodynamics and thermal analysis*

<http://www.nea.fr/html/dbtdb/cgi-bin/tbdbocproc.cgi>

<http://www.crct.polymtl.ca/FACT/websites.htm>

<http://www.thermocalc.se/>

<http://www.met.kth.se/pd/>

<http://gttserv.lth.rwth-aachen.de/~sp/tt/index.htm>

<http://www.npl.co.uk/npl/cmmt/mtdata/mtdata.html>

<http://www.crct.polymtl.ca/fact/fact.htm>

<http://www.ahsystem.com/hsc2.htm>

<http://www.kagaku.com/malt/>

<http://www.kriss.re.kr/~bjlee/calphad/calphad.htm>

<http://www.esm-software.com/>

[http://tigger.uic.edu/~mansoori/Thermodynamic.Data.and.Property\\_html](http://tigger.uic.edu/~mansoori/Thermodynamic.Data.and.Property_html)

<http://www.science.ubc.ca/~geol323/thermo/thermo.htm>

<http://gbelov.tripod.com/>

<http://www.cisti.nrc.ca/codata/>

<http://www.calphad.org/>

[http://cyberbuzz.gatech.edu/asm\\_tms/phase\\_diagrams/](http://cyberbuzz.gatech.edu/asm_tms/phase_diagrams/)

<http://www.chem.msu.su/eng/lab/td/isf.html>

<http://krissol.kriss.re.kr/~bjlee/kordic.htm>

<http://www.computherm.com/pandat.html>

<http://web.utk.edu/~athas/> (Univer. of Tennessee database)

<http://wbbook.nist.gov> (Inst. of Standards)

[www.anasys.co.uk](http://www.anasys.co.uk) (thermal analysis methods)

[www.ulci.com/users/gundlach/ta.htm](http://www.ulci.com/users/gundlach/ta.htm) (thermal analysis hotlinks)

### *g) Survey of softwares*

<http://www.chemdex.org/chemdex/software.html> (Chemdex)

[http://www.claessen.net/chemistry/soft\\_en.html](http://www.claessen.net/chemistry/soft_en.html) (Rolf Claessen's Chemistry Index)

<http://www.genamics.com/software/> (Genamics)

<http://www.chemsw.com> (ChemSW)

<http://www.ccl.net/cca/software/> (software bank)

<http://antas.agraria.uniss.it/software.html> (software of computer chemists)

[http://www.chem.swin.edu.au/chem\\_ref.html](http://www.chem.swin.edu.au/chem_ref.html) (software of computer chemists)

<http://www.netsci.org/Resources/Software/top.html> (software of computer chemists)

<http://nbif.org/software/software.html> (noncommercial software)

<http://interchem.chem.strath.ac.uk/inter/interprobe.html> (Interprobe Chem. Services)

<http://www.cti.ecp.fr/documents/tests/chem.html> (chemical MIME formates)

<http://www.csir.org> (CSIR)

<http://studwww.rug.ac.be/~tkuppens/chem.shtml> (freely distributed software)

<http://www.mathtrek.com> (EQS4WIN, Chemical Equilibrium Software)

<http://www.ks.uiuc.edu/Research/namd/> (NAMD, simulation of large biomoleculars)

<http://www.ks.uiuc.edu/Research/vmd/> (VMD, vizualisation of molecular dynamics)

<http://www.acdlabs.com> (ChemSketch, drawing program)

<http://www.mdli.com> (ISIS/Draw, drawing program; Chime PlugIn)

<http://www.umass.edu/microbio/rasmol/> (Rasmol, graphical molecular viewer in 3D)

<http://www.eyesopen.com/babel.html> (BABEL, formate conversion of molecular modeling)

<http://dirac.cnrs-orleans.fr/MMTK/> (MMTK, Molecular Modeling Toolkit)

<http://www.openscience.org/jmol/> (JMOL, researcher and editor of molecules)

<http://www.ks.uiuc.edu/Research/vmd/> (VMD, Visual Molecular Dynamics)

<http://www.chemaxon.com/marvin/> (Marvin, drawing and visualization of chemical structures)

<http://igc.ethz.ch/molekel/molekel.html> (MOLEKEL, interactive 3D graphic)

<http://www.cs.wisc.edu/~ghost/> (Ghostscript, PS to PDF and vice versa)

<http://www.oxmol.com/landings/chemexplorer/> (ChemExplorer, searching for chemical information)

<http://www.teokem.lu.se/molcas/> (MOLCAS, for kquantum chemistry)

<http://gauss.fh-bielefeld.de/aim2000/> (AIM2000, atoms analysis and visualization)

<http://vegemite.chem.nott.ac.uk/~xmakemol/> (XMAKEMOL, searching in molecular systems)

<http://www.ch.unito.it/ifm/fisica/molDraw/molDraw.html> (MOLDRAW, molecules representation)  
<http://www.emsl.pnl.gov/pub/docs/nwchem/> (NWCHEM, properties of molecular systems)  
<http://compbio.ornl.gov/structure/prospect/> (PROSPECT, protein structures)  
<http://www.uku.fi/~thassine/gchemical/> (GHEMICAL, molecular modeling)  
<http://www.planaria-software.com> (ArgusLab, preparation of 3D molecules)  
<http://www.jchem.com> (Jchem, manipulation with chemical data)  
<http://dasher.wustl.edu/tinker/> (TINKER, design of molecules)  
<http://jchempaint.sourceforge.net> (JchemPaint, drawing of 2D structures)  
<http://users.erols.com/cbaba/> (chemical calculator)  
<http://www.jindrich.com> (CHROMuLAN, acquisition and proceeding of chromatographic data)  
<http://quantum-2.chem.msu.ru/gran/gamess/> (PC GAMESS)  
<http://dasher.wustl.edu/tinker/> (Tinker, molecular mechanics and dynamics)  
<http://linkchecker.sourceforge.net> (approval of hypertexted citations) <http://www.uochb.cas.cz/Bulletin/bulletin323/bulletin323.html#11> (Czech chemical bulletin)

#### *h) "On-line" interactive software*

<http://www2.ccc.uni-erlangen.de/services/> (TORVS - Chemical Internet Services)  
<http://cwgenqa.chemweb.com/autonom/autonomsearch.html> (name by structure)  
<http://www.chemie.de/tools/units.php3?language=e> (conversion of units)  
<http://www.chemie.de/tools/mm.php3?language=e> (evaluation of molecular mass)  
<http://pirika.com/chem/index-j.html> (VMPSC, on-line evaluations of phys. chemical properties)  
<http://dusek.upce.cz/netdiag/link/> (approval of Web sides on validation of hypertexted citations)

#### *i) Chemical education*

<http://www.psrc.usm.edu/macrog/701/> (organic polymes)  
<http://www.sst.ph.ic.ac.uk/angus/Lectures/compphys/> (computational chemistry)  
<http://zvon.vscht.cz> (Beilstein CrossFire, XML, XSL, Perl)  
<http://www.iucr.org/cww-top/edu.index.html> (crystallography)  
<http://informatics.indiana.edu> (chemical informatics)  
<http://scifun.chem.wisc.edu/SCIFUN.HTML> (science is fun)  
<http://www.chemie-im-fokus.de/index1.htm> (Chemie im Fokus)  
<http://www.sbu.ac.uk/water/> (water)  
<http://sis.nlm.nih.gov/toxtutor.cfm> (toxicological tutorials)  
<http://www.cem.msu.edu/~parrill/> (organic chemistry)  
<http://www.rsc.org/lic/imagesintro.htm> (history)

*j) Electronic journals, books, conferences, discussion groups*

- <http://www.publist.com> (The Internet Directory of publications, 150 000. titles)
- <http://genamics.com/journals/index.htm> (database of 4600 academic journals)
- <http://www.chemconnect.com/library/journals/> (list of chemical journals)
- <http://highwire.stanford.edu>, [intl.highwire.org](http://intl.highwire.org) (survey of on-line biomedical journals)
- <http://www.library.ubc.ca/scieng/coden.html> (alphabetic list of titles)
- <http://info.cas.org/EO/ejournal2.html> (CAS)
- <http://dir.yahoo.com/Science/Chemistry/Journals/> (chemical journals)
- [http://www.public.iastate.edu/~pedro/rt\\_journals.html](http://www.public.iastate.edu/~pedro/rt_journals.html) (biochemical journals)
- <http://www.elsevier.nl/inca/tree/?prod=J&key=SSAA> (Elsevier)
- <http://www.netnam.vn/journals/chemistry.htm> (NetNam)
- [http://www.biblioteca.cbpf.br/impacto/Num\\_fp\\_e.txt](http://www.biblioteca.cbpf.br/impacto/Num_fp_e.txt) (Impact factor listing of journals)
- <http://pubs.acs.org> (American Chemical Society)
- <http://pubs.acs.org/about.html> (publ. American Chemical Society)
- <http://www.stk.cz/zdroje/casopisy/chem.htm> (list of on-line chemical journals)
- <http://www.reedchemicals.com> (Reed Magazines On-line)
- <http://www.drugdiscoveryonline.com> (Drug Discovery On-line)
- <http://intl-neco.mitpress.org> (Neural Computation)
- <http://intl-chemse.oupjournals.org> (Chemical Senses)
- <http://www.nature.com> (Nature)
- <http://wos.mimas.ac.uk> (web of science)
- <http://www.acdlabs.com/webzine/> (Reactive Reports)
- [www.wkap.nl/journalhome.htm/1418-2874](http://www.wkap.nl/journalhome.htm/1418-2874) (J Thermal Anal Calorim)
- [www.academicpress.com/jct](http://www.academicpress.com/jct) (J.Chem.Thermodyn)
- [www.elsevier.com/locate/ica](http://www.elsevier.com/locate/ica) (Thermochim Acta)
- <http://www.chemcomp.com> (Journal of the Chemical Computing Group)
- <http://www.jbc.org> (Journal of Biological Chemistry On-line)
- <http://petrology.oupjournals.org> (Journal of Petrology On-line)
- <http://journals.iucr.org> (Acta Crystallographica On-line)
- <http://ojps.aip.org/jcpo/> (Journal of Chemical Physics)
- <http://ojps.aip.org/jpcrd/> (Journal of Physical and Chemical Reference Data)
- <http://journals.wiley.com/jcc/> (Journal of Computational Chemistry)
- <http://www3.electrochem.org/journal.html> (Journal of The Electrochemical Society)
- <http://sunsite.cnlab-switch.ch/mdpi/cji/> (Chemical Journal on Internet)
- <http://ojps.aip.org/cry/> (Crystallography Reports)
- <http://www.turpion.org/mc/> (Mendeleev Communications)

<http://www.chemical-newsflash.de/en/> (German sources)  
<http://www.turpion.org/rcr/> (Russian Chemical Reviews)  
<http://www.chemweb.com/alchemist/> (The Alchemist)  
<http://www.the-scientist.com> (The Scientist)  
<http://www.newscientist.com> (New Scientist)  
<http://pubs.acs.org/journals/tcwoe7/> (Today's Chemist At Work)  
<http://pubs.acs.org/cen/> (Chemical and Engineering News)  
<http://www.biopharm-mag.com> (BioPharm Magazine On-line)  
<http://www.chemweek.com> (Chemical Week)  
<http://ci.mond.org/> (Chemistry & Industry)  
<http://www.mdpi.org/molecules/> (Molecules)  
<http://www.mdpi.org/entropy/> (Entropy)  
[http://hplc.chem.shu.edu/NEW/HPLC\\_Book/index.html](http://hplc.chem.shu.edu/NEW/HPLC_Book/index.html) (Basic Liquid Chromatography)  
<http://www.molbank.org> (synthesis of organic compound)  
<http://www.cis.rit.edu/htbooks/nmr/nmr-main.htm> (The Basics of NMR)  
<http://gutenberg.llnl.gov/~colvin/intro/intro.html> (Introduction to Computational Chemistry)  
<http://www.chemistry.mcmaster.ca/faculty/bader/aim/> (Theory of Atoms in Molecules)  
<http://gilsonlab.umbi.umd.edu> (Introduction to Continuum Electrostatics)  
<http://www.ilpi.com/organomet/> (Organometallic HyperText Book)  
<http://www.libsci.sc.edu/bob/chemnet/chchron.htm> (Chronology of Chemical Information Science)  
<http://www.chemsoc.org/goldbook/> (IUPAC Compendium of Chemical Terminology)  
<http://esg-www.mit.edu:8001/esgbio> (MIT's Biology Hypertextbook, biochemie,

### *k) Electronic libraries*

<http://wos.cesnet.cz> (Web of Science, bibliographic catalog, citation indexes)  
<http://www.bl.uk> (The British National Library)  
<http://www.cam.ac.uk/Hytelnet/> (world sources)  
<http://igm.nlm.nih.gov> (National Library of Medicine)  
<http://theses.mit.edu> (disertations of M.I.T.)  
<http://www.theses.org> (sources of on-line disertations)  
<http://www.ulg.ac.be/libnet/spring/histoire.html> (history of chemistry)  
<http://polycbs.com> (centre of crystallography)  
<http://www.almaz.com/nobel/> (archives of Nobelo prices)  
<http://www.chem.brown.edu/chem-ph.html> (preprints of chemical physics)  
<http://www.elsevier.nl/homepage/electserv/?mode=other&mode=other> (Elsevier Journals)

- [http://chemie.upce.cz/a\\_liter.htm#knihovny](http://chemie.upce.cz/a_liter.htm#knihovny) (libraries in Czech republic)  
<http://www.liv.ac.uk/Chemistry/Links/maillists.html> (discussions)  
<http://www.chem.swin.edu.au/mirrors/maillinglists.html> (discussions)  
<http://www.chemdex.org/chemdex/listserv.html> (discussions)  
<http://www.ch.ic.ac.uk/ectoc/> (conference, ECTOC, Trends in Organic Chemistry)  
<http://www.chemint.org> (Conference, ChemInt, Chemistry and Internet)  
<http://hackberry.chem.trinity.edu> (Conference, ECCC, Computational Chemistry)

*Literature:*

- [1] J. A. Meel, "Welcoming Address" in the proceedings of IPMM'2000, Vancouver  
 [2] M. Schrage "Shared Minds – New Technologies of Collaboration", Random House 1995  
 [3] G. S. Paul, E. Cox "Beyond Humanity – Cyberevolution and Future Minds", Charles River Media 1996  
 [4] B. Leitner, V. Cerf, D. Clark, R. Kahn, L. Kleinorck. D. Lynch, S. Wolff "A Brief History of Internet", 2000  
 [5] D. M. Price, ICTAC News 33/2 (2000) 117  
 [6] Bulletin of the Czech Chemical Society  
 [7] J. Sestak, lectures "On the Borderland of Science and Philosophy of Nature", Charles University 1999/00 and State University of New York 2000/01  
 [8] J. Fiala, J. Sestak, J. Thermal Anal. Cal. 60 (2000) 1101

## LICENSE STUDY ON THERMAL ANALYSIS IN CZECHIA

*University of Pardubice offers a special form of postgraduate study entitled to*  
**Use calorimetric and thermoanalytic methods**  
**in chemical research and technology.**

The extent of the study is 295 hours organized within four terms (optimally in two consequent years, practically realized in week courses). The lectures are selected from the best teachers and scientists from the Pardubice University, Charles University, Institute of Chemical Technology, Academy of Sciences and other industrial enterprises and practice oriented institutions. The study is under auspice of Prof. Vratislav Velich (Pardubice University and Working Group on Calorimetry, Czech Chemical Society) and Prof. Jaroslav Sestak (Academy of Sciences and Working Group on Thermal Analysis, Czech Chemical Society).

Secretary is Dr. Galina Frankova (Faculty of Chemical Technology, University of Pardubice, Nam. Legii 565, CZ-53210 Pardubice, tell. (+420) 40-6037173, fax 40-6037068,

Email [Galina.Frankova@upce.cz](mailto:Galina.Frankova@upce.cz) .

The study will be terminated by diploma theses and the international title *EURO Engineer* will be granted to all who successfully pass the study.

For a satisfactory number of foreign applicants the license study will be carried out in English and in time-condensed form (accommodation would be possible to reserve in student facilities or in nearby hotels).

*Outline of the study:*

### **Theoretical groundwork:**

Mathematical bases and Interactive statistic analysis

Regressive models of linear and nonlinear calibration

Experiments planning in calorimetry and thermal analysis

Chemical thermodynamics

Thermodynamics and thermochemistry of real system

### **Calorimetric methods**

Adiabatic and izoperibolic calorimetry and calorimeters with thermal flux

Determination of thermal capacities

Prediction of thermodynamic data

Mixing and flow calorimeters

Combustion calorimetry

### **Thermoanalytical methods**

Introduction to thermal analysis

Kinetic evaluations

Thermomechanical and dynamic mechanical analysis

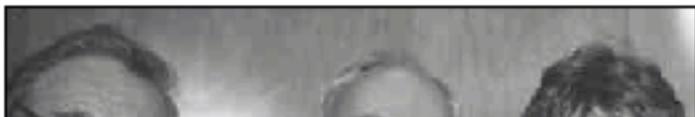
Use of DTA and DSAC in macromolecular chemistry

Simultaneous methods

Modulated and oscillatory methods

### **Laboratory exercises**

## **NATURE AS SEEN BY A SCIENTIST**

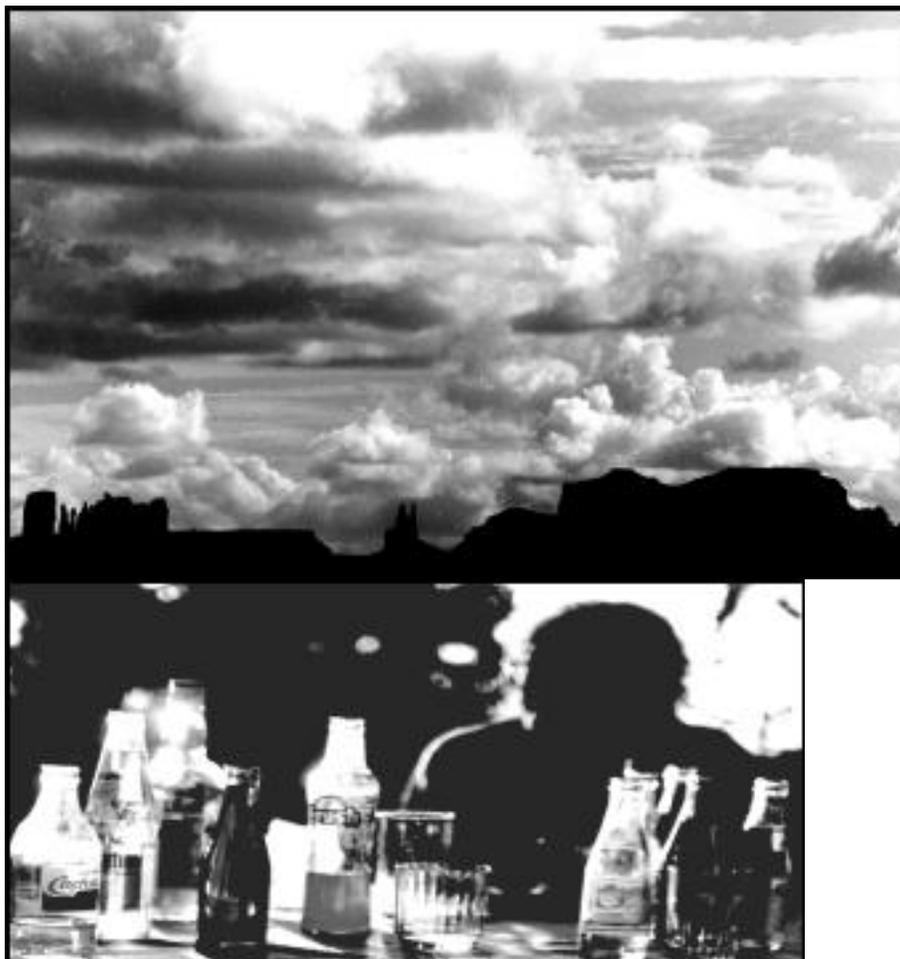


*Cyril J. Keatch, Slade St. J. Warne*



*and the author*





After college Jaroslav Šesták (\*1938) wanted to study painting and he kept practicing this hobby for a long time. Deeply engaged in science however, he lacked the time to continue. In the middle of the seventies, he began to act as a mountaineering photographer (e.g., Caucasus 1977, Himalayas 1982 or Pamir 1983) and started giving lectures accompanied with color slides. Later on, some journals asked him to prepare photos for publication some of which were even used to illustrate his scientific book "Advanced Inorganic Materials" (Prague 1993). Since that time, Jaroslav Šesták has made over fifteen photo exhibitions, the most significant being the last four. In the year 1999, an exhibition was held in the Prague Town Hall SMICHOV entitled "Globetrotting" (accompanied by the photo-catalogue). The following year in Prague again, in the ECCE TERRA Gallery, "US Country of Canyons and Skyscrapers" was presented. This was followed in 2001 with "Expeditions" which was exhibited together with books of the Center for Democracy and Free Enterprise (the Czech branch of the US Sabre Foundation). For its success it was repeated in Pilsen 2001. As a renowned material scientist, he held previous exhibitions at a number of International Conferences (Tokyo, Japan – 1992; Cordoba, Argentina – 1995; Balatonfured, Hungary – 1998; Copenhagen, Denmark – 2000 and Vancouver, Canada - 2001).