

News

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3rd International Colloquium on Applied Stereology and Image Analysis (CASIA '88)

Under the sponsorship of the International Society for Stereology (ISS) the 3rd International Colloquium on Applied Stereology and Image Analysis (CASIA '88) took place at Starý Smokovec in the High Tatras, Czechoslovakia, from October 31 to November 3, 1988. The organizers were the Working Group for Stereology of the Czechoslovak Association for Cybernetics at the Czechoslovak Academy of Sciences (ČSAV) together with the Mining Faculty of the Technical University in Košice, the Czechoslovak Society of Biological Engineering, the Institute of Physiology of the ČSAV, the Czechoslovak Society for Science and Technology and the House of Technology in Košice. Among 110 participants 25 were from abroad (Poland 5; GDR 4; France and GFR 3; USSR, UK, Hungary, Yugoslavia 2; Denmark and USA 1). The board of the ISS was represented by Dr. T. Mattfeldt, the secretary/treasurer, and by Prof. M. Kališník, editor of *Acta Stereologica*. The language of the Colloquium was English.

In the opening ceremony, the welcome address of Dr. G. Timčák, Chief of the Organizing Committee, was followed by the address of Prof. P. Trančík, the Dean of the Mining Faculty of the Technical University in Košice, by the address of the Corresponding Member of ČSAV J. Nedoma, President of the Czechoslovak Association for Cybernetics, and by the address of Dr. Mattfeldt who presented the personal letter of Prof. L. Chermant, President of ISS, too. At the end of the inaugural session Prof. H. J. Gundersen (Denmark), Prof. M. Kališník (Yugoslavia), Dr. T. Mattfeldt (GFR) and Dr. W. Nagel (GDR) together with Dr. I. Krekule, Dr. I. Saxl and Dr. V. Horálek (all Czechoslovakia), the Chairman of the Working Group for Stereology, were awarded for their efforts in the promotion of international stereological cooperation by a commemorative medal of the Technical University in Košice.

After the opening lecture of Dr. J. P. Rigaut (France) devoted to image analysis in histology, the scientific program contained 33 domestic and 23 foreign contributions delivered in four sessions:

1. Mathematical Foundations of Stereology:
 - a) Stereology and Stochastic Geometry (10 lectures),
 - b) Mathematical Morphology and Image Transformations (5 lectures),
2. Applications of Stereology in Bio-Sciences (11 lectures),
3. Applications of Stereology in Materials and Earth Sciences (14 lectures),
4. Applications of Image Analysis in Solving Stereological Problems (16 lectures).

In the first part of the first sessions the attention was paid to new stereological tools for unbiased estimation of particle number and sizes (the disector, the fractionator, the selector, the nucleator), to the systematic sampling (geometric models and statistical aspects), to the generalization of the set covariance, to structure models with various types of spacing spherical particles (including the model with particles on grain boundaries) and their identification, to random paths and interparticles distances, to measuring the symmetry of particles based on geometric properties of their parallel sections, to the analysis of planar anisotropy, to stereology of anisotropic structures and to computer aided analysis of bi-axial oriented systems.

The contributions of the second part of the first session were focussed on recent progress in the mathematical aspects of image analysis (IA), on an overview of contemplations on precision and consistency of measurements in images, on confocal microscopy problems, on the use of the theory of graphs in the analysis of cell patterns and on the application of differential transformations in IA.

The second session was opened by an overview of applications of stereology in bio-sciences,

prepared by Prof. Kališník. The next contributions were devoted to DNA profil analysis with cell nuclei in thin slices, to 3-d tissue architecture studied by laser confocal microscopy, to quantitative evaluation of follicular cells of human Graafian follicles, to computer-aided microscopy in pathology, to morphometry of dilated nephrons, to the processing of image sequences in nuclear medicine by factor analysis, to the method of objective assessment of radiographic bone structure, to the stereological analysis of the leaf of barley and to stereology and biomechanics of spongy human bone.

In the third session the contributions dealt with applications of stereology to

- quantitative metallography of real structures, of high-speed steels and of engineering ceramics,
- the investigation of sintered carbides, of cast iron, of plastics, of cavitation in creep and of intergranular creep damage in metallic materials,
- the analysis of phase composition of high temperature superconductors, and
- evaluating planar interparticle distances in simulated structure by using a computer program.

In the second part of this session the applications of stereology in earth sciences were presented. The overview lecture on this topic, prepared by Dr. G. Timčák, was followed by contributions on evaluation of crack anisotropy and of coal petrological properties.

The applications of image analysis (IA), presented in the fourth session, were concentrated to mathematical morphology and convolutions, to comparison of specialized and parallel structures, to characterization of fractal biological objects, to the filtering of dot patterns, to classification of algal cells, to the use of the computer graphic in IA, to the architecture of a PC-based workstation for IA, to the description of a laboratory structure analyser system and of the Joyce-Loebl Magiscan IA system including its use in stereology. The fields of the application of IA were very different: in engineering geology by using SEM, in X-ray materials testing, in the analysis of electrical conductivity of discontinuous metal films, in testing materials homogeneity, in evaluating steel purity, in characterization of anodic films in Al anode foils and of EM images of DNA molecules.

Prof. Kališník in his closing evaluation emphasized the high professional and social level of the Colloquium, its friendly atmosphere and its valuable contribution to international cooperation in stereology and image analysis.

In the closing talk Dr. Horálek, on behalf of the Working Group for Stereology, expressed thanks to ISS for the sponsorship, all lecturers for their invited papers and instructive contributions and especially to the Secretary of the Organizing Committee Dr. Timčák and his co-workers Dr. Saxl and Dr. Krekule and the House of Technology for very hard, but successful work. The next colloquium will be held in Prague in 1992.

Vratislav Horálek

Preliminary announcement and call for papers

International Symposium on Fuzzy Approach to Reasoning and Decision-Making

Czechoslovakia, Bechyně, June 25—29, 1990

The Symposium is organized by the Mining Institute of the Czechoslovak Academy of Sciences (Ostrava) in cooperation with the Institute of Information Theory and Automation of the Czechoslovak Academy of Sciences (Prague), Research Institute for Regions and Macroeconomy (Ostrava), and the Faculty of Engineering of the Technical University (Brno), and under the sponsorship of the International Fuzzy Systems Association, IEEE-Computer Society, Society of Czechoslovak Mathematicians and Physicists, and the Czechoslovak Association for Cybernetics.

The program of the Symposium will be devoted mainly to problems concerning the recent development of the fuzzy sets theory and its applications. Namely to the fuzzy logic including the approximate rules of inference, control problems with applications in the artificial intelligence and expert systems, optimization and decision-making procedures and mathematical programming as well as the uncertainty processing in the methods mentioned above will be especially welcomed. The organizers suppose to devote a corresponding part of the program to panel and informal discussions on the actual problems of the present and future state of the fuzziness processing.

The Symposium will be held in the House of Scientific Workers of the Czechoslovak Academy of Sciences in Bechyně, a reconstructed castle about 100 km to the south from Prague.

If you are interested in more information about the Symposium, and if you want to be included in its mailing list write, please, to the following address:

Dr. Milan Mareš
ÚTIA ČSAV
Pod vodárenskou věží 4
182 08 Praha 8
Czechoslovakia.

As the number of the Symposium participants is limited by the capacity of the House of Scientific Workers in Bechyně, it is necessary to inform the organizers about your interest as soon as possible.

Vilém Novák, Milan Mareš, Jiří Nekola

Preliminary announcement and call for papers

Eleventh Prague Conference

on Information Theory, Statistical Decision Functions and Random Processes

The Conference is organized by the Institute of Information Theory and Automation of the Czechoslovak Academy of Sciences, the Faculty of Mathematics and Physics of the Charles University being a co-organizer of the Conference. It will be held in Prague from 27th to 31st August 1990.

The Prague Conferences have been organized since 1956 when their tradition was founded by an outstanding Czechoslovak scientist Professor Antonín Špaček.

The Eleventh Prague Conference will follow the tradition of the previous Prague Conferences in being organized as a wide and representative meeting of scientists from many countries all over the world. Its programme will include invited lectures and brief contributions concerning the traditional branches mentioned in the Conference title. In order to cover up-to-date ideas in the field, the variety of contributions will be somewhat restricted, namely, special attention will be paid to the following topics:

- Weak convergence and compactness for stochastic processes, together with invariance principles,
- Inference from random processes and random fields,
- Statistics, especially small-sample and robust procedures, L_1 -norm methods, computational aspects, nonlinear and nonparametric approach,
- Stochastic problems in information transmission and statistical applications of entropy, information, and related concepts,
- Probabilistic and information-theory methods in artificial intelligence,
- Uncertainty and information in decision-making and choice-of-strategy problems.

Lectures dealing with theoretical problems connected to applications are especially welcome. Refereed contributions will be published in the Conference Transactions.

If you are interested in more detailed information about the Eleventh Prague Conference, address your correspondence to:

11th Prague Conference
ÚTIA ČSAV
Pod vodárenskou věží 4
182 08 Praha 8
Czechoslovakia

Antonín Otáhal

