

## PREFACE

### THE SIXTH EUROPEAN CONGRESS FOR STEREOLOGY Prague, September 6 - 10, 1993

At 2 p.m. on Friday, September 10, 1993 the 6th European Congress for Stereology (6 ECS) was closed in the presence of an unusually high number of participants enjoying the setting of the Congress in the medieval complex of the Charles University in the Old City of Prague till the last moment.

The Congress, supported by IEEE-Engineering in Medicine and Biology Society and by a number of Czech scientific institutions and organizations, was held on behalf of the ISS by the Czech Society for Biomedical Engineering and Medical Informatics. It was a highlight on the long way of this Society in promoting stereology. Both the International Colloquium on Mathematical Morphology, Stereology and Image Analysis (Prague, 1982) and the Summer School on Advanced Methods in Stereology (Skalský Dvůr, 1986) should be recalled in this respect.

Nearly 200 participants from 23 countries attended the Congress and presented 154 contributions (52 oral presentations, 99 posters, 11 keynote and 2 memorial lectures). Moreover, 10 contributions of young stereologists, were presented both orally and by the poster.

The 6 ECS scientific programme, thanks to a tight collaboration of the Local Committee and the International Advisory Board, resulted in an adequate grouping of topics into subsessions with a well balanced ratio of theory and application-oriented contributions. The majority of the latter were presented by posters. The careful selection of keynote speakers added to a flavour of the knowledge fair as the meeting can be called.

The memorial lectures read by M. Petráň (Microscopes for stereology) and H.J.G. Gundersen (The first decade of disector) formed the scientific part of the opening session.

The organizers intended to give slightly more space to mathematics than usually by arranging two sessions: i/Random set theory and integral geometry for stereology and ii/Statistics for stereology with three key-note lectures. W. Weil presented the convex geometry approaches to reconstructing the shapes of features from their sections and projections. J. Møller gave a detailed review of the Johnson-Mehl tessellation with the analysis of its sectional characteristics. D. Stoyan demonstrated the importance and power of statistics in stereological estimation of feature parameters and correlations.

The already traditionally most attended session on applications in biology was introduced by key-note of V. Howard et al: "Stereology and developmental pathology". The attention of auditorium was further attracted by

the results of neuronal tissue quantitative evaluation presented by members of the Danish School and by broad application opportunities of stereology in plant anatomy, which were overviewed in the comprehensive key-note lecture of L. Kubínová.

A.M. Gokhale in his key-note to the session "Stereology in Materials Science" emphasized the value of the latest stereological methods for materials science. J. Cwajna reviewed the quality control of steels and discussed the insufficient role of stereology in common production control until now. All four subsessions, i.e. modelling, particle systems, fibrestructures, steels, demonstrated the ever-increasing impact of probabilistic models and approaches.

The session on mathematical morphology and image analysis, introduced by an expert insight into the domain of morphological filtering (J.L. Chermant & M. Coster), has shown among others image analysis as an off-spin of desk-top publishing software systems.

The 3D reconstruction and confocal microscopy session was opened by a carefully selected overview of 3D computer visualization and reconstruction (N. Gershon - representative of IEEE-EMBS) and touched hot topics like estimation of surfacearea of 3D reconstructed bodies or spatial distribution of a fiber process.

The already traditional session of young stereologists has demonstrated the broad spectrum of interests of novices in the field which was spread from biology up to image processing. The session was well attended and confirmed efficacy of the combination of floor and poster presentations.

At the first time in the history of congresses for stereology, a special session was devoted to geosciences. J. Bodziony in his key-note enumerated the difficulties and limitations of stereology and image analysis in rock and soil research. Number of contributions accented similarities as well as differences between materials and soil structures.

Two evening round-table discussions were devoted to spatial tessellations and to applications of stereology in biology. The former confirmed the need for extensive data concerning lower-dimensional sections of tessellations of different type and stressed the theoretical importance of investigating tessellations in spaces with dimensionality  $> 3$ . The latter spelled out in various terms the contrast between methods and rigorous assumptions required by stereology which may often need an assistance of mathematicians and calls for more books. In the software and hardware exhibition, which forms already a traditional part of such meetings, the new slit scanning, real-time confocal microscope BIORAD MRC 1000 was introduced.

The TATIANA sponsored course Stereo '93 was held together with the course on Stochastic Geometry in Czech resort Skalský Dvůr during the week before the Congress. The Stereo '93 was staffed by a team of experienced lecturers as L.M. Cruz-Orive, H.J.G. Gundersen, E.B. Vedel-Jensen, V. Howard, B. Pakkenberg as well as members of the new

generation of stereologists from Denmark. The course on Stochastic Geometry was also excellently prepared and read by the group of the Bergakademie Freiberg, Germany, led by U. Lorz and J. Ohser. Course on Stereology in Plant Anatomy took place at the Charles University after the Congress. It was skillfully organized and led by L. Kubínová and J. Albrechtová and successfully attempted to open a new and fruitful application area of stereology. All these courses have added the scientific value to the Congress.

The state of the ISS was presented by its president Prof. Vyvyan Howard and discussed during the plenary meeting of ISS. The dignity which emanated from old premises of the Charles University gave to the Congress an unforgettable flavour multiplied by the magic beauty of Prague exposed in amild Autumn sunshine.

It is our pleasure to express thanks to all referees of the Proceedings issue of *Acta Stereologica*, especially to:

F. Abadía-Fenol, V. Beneš, J. Bodziony, J. Chadœf, J.L. Chermant, R. Coleman, L.M. Cruz-Orive, J. Cwajna, F. Doležal, S. Eins, N.D. Gershon, A.M. Gokhale, H.J.G. Gundersen, P. Hach, U. Hahn, V. Horálek, C.V. Howard, M. Jourlin, L. Kubínová, H. Kurz, K.J. Kurzydłowski, C. Lanteujou, E.G. Markova, T. Mattfeldt, L. Mucbe, J.R.N. Nyengaard, J. Ohser, J.P. Rigaut, J. Riss, K. Sandau, D. Stoyan, P. Stroeven, G.M. Timčák, E.E. Underwood, E. Vedel-Jensen and L. Wojnar, for accomplishing that demanding ask during the Congress.

Ivan Krekule & Ivan Saxl, guest co-editors