

Institutskolloquium

Thema: From cell image processing to differential diagnosis of thyroid cancer

Referent: *Prof. S. Ablameyko und Prof. V. Kirillov*
Institute of Engineering Cybernetics, Belarussian Academy of Sciences, 6, Surganov Str, 220012, Minsk, Belarus;
Research and Clinical Institute of Radiation Medicine and Endocrinology Philimonova str., 23, 220114 Minsk, Belarus

Ort: Hörsaal GH3, Etage E des Universitätsklinikums Aachen, Pauwelsstraße 30, 52074 Aachen

Zeit: Dienstag, den 16. April 2002, 14.00 – 16.00 Uhr

Abstract:

Seminar will be devoted to computer analysis of cytological images for diagnosis of thyroid cancer.

In differential cytologic diagnosis of thyroid tumors, the role of generally accepted criteria of malignancy, which are based on the whole complex of quantitative indices of cell abnormality, is limited. This leads to low frequency of thyroid cancer recognition at early stages and necessitates the development and adoption of new, more effective methods of oncological diagnosis.

One of the approaches to solving this problem is the transformation of qualitative indices of pathological changes in cells to a quantitative form with the help of the computer morphometry method.

There are four main tasks/steps in this approach: a) cytological image segmentation, b) image vectorisation and morphometric data base building, c) morphometric parameters selection and building expert system, and d) thyroid cancer diagnosis.

According to this technology, the following main topics will be considered at presentation:

- creation of computer analyser of cytological images;
- automated processing and binarization of colour images;
- automatic raster-to-vector transformation and formation of objects with their quantitative parameters;
- interactive editing of extracted objects;
- morphometric assessment of biological objects by quantitative parameters;
- statistical processing of the results;
- creation of expert system;
- diagnosis of thyroid cancer.

Practical results of the developed at current stage computer analyser of cytological images will be shown.

Opportunities of the computer analyser for diagnosis of thyroid cancer will be shown.



The Institute of Electrical
and Electronics Engineers
Deutsche Sektion
Joint Chapter EMB

<http://ewh.ieee.org/r8/germany/emb/>

