# COMPARISON OF SPECT CEREBRAL IMAGES EXAMINATION METHODS BASED ON LUMINANCE LEVEL AND MORPHOLOGICAL SPECTRA EVALUATION

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**Abstract:**

It is presented a method of SPECT (single-photon emission tomography) cerebral images examination based on morphological spectra. The advantages of the SPECT imaging in early diagnosing of encephalic diseases are emphasized. The detected radiation levels in the SPECT imaging are visualized by luminance levels which give insight into the lesions of cerebral tissue. It is shown that a rough, on luminance level based, examination of the SPECT images can be improved if more sophisticated analytical methods are used. Basic notions and properties of morphological spectra and their applicability as tools for biomedical image analysis are shortly reminded.

A simple formula for reversing transformation reconstructing of original image on the basis of a given morphological spectrum is presented. Results of experiments consisting in comparison of the morphological spectra calculated for selected pairs of testing windows in the SPECT cerebral images are shown. It has been shown that the morphological spectra can better suit to an effective comparison of views of the cerebral regions located symmetrically with respect to the brain axis separating the left and right cerebral hemispheres than the averaged luminance level.

**Keywords:** computer-assisted image processing, brain imaging, SPECT imaging, morphological spectra