This paper addresses the problem of extracting content-based image parameters from high resolution SAR data. The information extraction is achieved through a spectral approach in which space-variant measures are defined in the frequency domain.

In order to thoroughly capture the informational content from the TerraSAR-X Spotlight single look complex data, a preliminary phase correction algorithm is applied to the focused SSC image to compensate the drift of the Doppler centroid frequency in azimuth direction, caused by variation of the squint angle during spotlight imaging.

The proposed spectral features are computed using a large window size and capture not only reflectance differences between the different scattering targets, but are also sensitive to the scene geometry, thus it is possible to discriminate between different scattering mechanisms present in the SAR scene and to point out similar regions or objects, as for instance when mining large data archives. The extracted features compose a feature vector and thus a vector classification algorithm is necessary to perform the classification of the SSC image and to label the different informational objects.