

This thesis is focused on studying limiting interpolation spaces with weight functions of slowly varying type and properties of operators defined on them.

In Paper 1 we establish conditions under which K-spaces in the limiting real interpolation involving slowly varying functions can be described by means of J-spaces and we also solve the reverse problem. Further, we apply our results to obtain density theorems for the corresponding limiting interpolation spaces.

In paper 2 we study the properties of compactness of operators defined on limiting interpolation spaces and derive the quantitative estimates of measure of non-compactness.

In paper 3 we estimate dual spaces of limiting interpolation spaces that involve weight functions of slowly varying type.