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Defect measures on graded Lie groups

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Abstract. In this article, we define a generalisation of microlocal defect measures (also known as H-measures) to the setting of graded nilpotent Lie groups. This requires to develop the notions of homogeneous symbols and classical pseudo-differential calculus adapted to this setting and defined via the representations of the groups. Our method relies on the study of the C^*-algebra of 0-homogeneous symbols. Then, we compute microlocal defect measures for concentrating and oscillating sequences, which also requires to investigate the notion of oscillating sequences in graded Lie groups. Finally, we discuss compensated compactness approaches in the context of graded nilpotent Lie groups.

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