

ONE-SCALE H-MEASURES, VARIANTS AND APPLICATIONS

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Microlocal defect functionals (H-measures, H-distributions, semiclassical measures etc.) are objects which determine, in some sense, the lack of strong compactness for weakly convergent L^p sequences. In contrast to the semiclassical measures, H-measures are not suitable to treat problems with a characteristic length (e.g. thickness of a plate). LUC TARTAR in his recent book overcame the mentioned restriction by introducing one-scale H-measures, a generalisation of H-measures with a characteristic length [2]. Moreover, these objects are also an extension of semiclassical measures, being functionals on continuous functions on a compactification of $\mathbb{R}^d \setminus \{0\}$.

We improve and generalise Tartar's localisation principle for one-scale H-measures from which we are able to derive the known localisation principles for both H-measures and semiclassical measures. Moreover, we develop a variant of compactness by compensation suitable for equations with a characteristic length [1].

Since one-scale H-measures are adequate only for the L^2 framework, we introduce the generalisation, one-scale H-distributions, as a counterpart of H-distributions with a characteristic length, and address some important features.

REFERENCES

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