L^p version of the First commutation lemma

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First commutation lemma (i.e. compactness of commutators of multiplication and Fourier multipliers) is one of the basic tools in defining H-measures and H-distributions. However, similar results were obtained by other authors, with the goal of proving other results, like boundedness of pseudodifferential operators on L^p spaces. We review and improve the known results both in the standard L^2 setting, as well as for general $1 < p < \infty$. Furthermore, we extend the result to less regular simbols and to commutation of more general pseudodifferential operators and multiplication.

This is joint work with Nenad Antonić and Darko Mitrović.