

Modulation spaces related to translation-invariant Banach spaces of quasi-analytic ultradistributions

PAVEL DIMOVSKI¹, STEVAN PILIPOVIĆ²,
BOJAN PRANGOSKI³, JASSON VINDAS⁴

¹ Faculty of Technology and Metallurgy

³ Faculty of Mechanical Engineering

Ss. Cyril and Methodius University, Skopje, R. Macedonia

² Department of Mathematics and Informatics, University of Novi Sad, Novi Sad, Serbia

⁴ Department of Mathematics Ghent University, Belgium

dimovski.pavel@gmail.com, pilipovic@dmf.uns.ac.rs, jvindas@cage.UGent.be

We define and study a new class of translation-modulation invariant Banach spaces of quasi-analytic ultradistributions. These new spaces show a certain stability under Fourier transform, duality and tensor product. Multiplication of the Fourier Lebesgue spaces L^1_{ω} with elements from these spaces, also multiplication of elements from this space with elements from its dual are considered. We associate a new Banach space \mathcal{M}^F to translation-modulation invariant Banach space F . These space \mathcal{M}^F remains translation-modulation invariant Banach space. The duals of \mathcal{M}^F are also considered. The new defined spaces \mathcal{M}^F and results concerning them are generalizations of already known Modulation spaces of (ultra)distributions and results about them.