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**Hans G. Feichtinger\***, hans.feichtinger@univie.ac.at. *Time-Frequency Analysis and Suitable Function Spaces.*

The key-point of this talk will be some exploration of function spaces concepts arising from time-frequency analysis respectively Gabor Analysis. Modulation spaces and Wiener amalgams have proved to be indispensable tools in time-frequency analysis, but also for the treatment of pseudo-differential operators or Fourier integral operators.

More precisely, we will recall a short summary of the concepts of Wiener amalgam spaces and modulation spaces, as well as the concept of Banach Gelfand Triples, with the associated kernel theorem (in the spirit of the L.Schwartz kernel theorem). We will indicate in which sense these spaces allow to capture more precisely the mapping properties of operators which may be unbounded in the Hilbert space setting. The subfamily of translation and modulation invariant spaces plays a specific role, with naturally associated regularization operators involving smoothing by convolution and localization by pointwise multiplication. (Received September 16, 2020)