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*The LGC-method*

**Abstract:** In this talk we will discuss in the context provided by some relevant problems/applications a versatile method developed by the author in order to analyze the boundedness properties of large classes of (sub-)linear or multi-linear operators. This so-called *LGC-method* consists of three key steps:

- phase *linearization*: the time/frequency plane is discretized in regions within which the phase of the operator's multiplier oscillates at the linear level;
- *Gabor* frame discretization: within each of the regions obtained at the first item, one performs an adapted Gabor frame decomposition of the input functions;
- *cancelation* via *time-frequency correlation*: the resulting discretized operator is now analyzed at the $L^2$ level via a $TT^*$ argument exploiting the size distribution of the Gabor coefficients via the structure of the time-frequency correlation level sets.

As a consequence of this methodology one can provide a unified approach to three main themes in Harmonic Analysis:

- The Linear Hilbert Transform and Maximal Operator along variable curves;
- Carleson Type operators in the presence of curvature;
- The bilinear Hilbert transform and maximal operator along variable curves.

More recent applications of this method to new classes of *hybrid* operators (i.e. having *both zero and non-zero curvature* features)–including but not restricted to the Bilinear Hilbert Carleson operator–will also be discussed.