SAW Transform Signal Processing

Many new signal processing functions can be achieved through the availability of real-time transforms. One implementation of such transforms uses surface acoustic wave (SAW) linear FM filters. Not only may these SAW devices be employed to produce a real-time signal that is proportional to the Fourier transform of the input, but several of these "chirp transforms" can also be configured to provide continuously tunable bandpass/bandstop filtering and versatile programmable matched filtering. Moreover, transform processing permits prewhitening to suppress narrowband interference in some systems. These topics, their limitations, and prototype results are described in the presentation although this text focuses primarily on the continuously variable bandpass/bandstop filtering.

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