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Advances in acousto-optic devices based on frequency
intermodulations suppression

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It is well known the limitative influence of the frequency intermodulation effect on the most important parameters in a big family of acousto-optic (AO) devices. The proposed presentation takes deals with new principles and related technical tools to perform significant suppression of the inherent intermodulation effects within broadband AO devices. The different AO interaction mechanisms in solids offering the intermodulations decrease have been considered. On this basis there were theoretically established and experimentally verified facilities to design a few types of advanced AO devices for a wideband signal processing with the extended spurious free dynamic range, as well as for a flexible laser beam forming with extremely high efficiency and etc.