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Paper: Technique to develop active devices by modifying Brillouin gain spectrum

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### Abstracts:

A simple technique to reshape the Brillouin gain spectrum is based on the superposition of the Brillouin scattering spectra from several concatenated optical fibres. Different and well defined Brillouin gain spectra can be obtained from each single mode fibre, when they are pumped at the same optical pump radiation. Furthermore, with this technique, a customized Brillouin gain spectral response can be obtained by choosing the single mode fibres properly. Thus, active devices such as filters, amplifiers and lasers with narrow band and customized band can be developed. To check experimentally our idea, we proposed and demonstrated an active device with a like  $\omega$  spectral response, with a bandwidth of 280 MHz at 3dB and a reject band placed in 10.78GHz from the pump wavelength. We used four different pieces of single mode fibre with 5m long each.