

# Optical Frequency Comb as a general-purpose and wide-band calibration source for astronomical high resolution infrared spectrographs

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**Abstract** A spectrally filtered Optical Frequency Comb (OFC) laser is proposed as a versatile calibration source for astronomical spectrometers in the 1–2  $\mu\text{m}$  spectral range. Such a source overcomes the limitations of current calibration lamps providing a uniform spectrum of equally spaced lines with similar intensity and extremely high long-term frequency stability. We present preliminary studies and results of a system which filters the OFC from a 100 MHz comb spacing to 16 GHz one, an adequate spacing for spectrometers with resolving power  $\Delta\lambda/\lambda > 30000$ . The first approach employs two Fabry-Perot cavities in series, made of dielectric coated mirrors, followed by a non-linear optical broadening system. The limitations of such a filtering process are discussed. These can be overcome by the second approach, based on filtering cavities with metallic coated mirrors.

**Keywords** Optical Frequency Combs (OFCs) ·  
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