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Optimization of laser wavelength, power and pulse duration for eye-safe Raman spectroscopy

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Raman spectroscopy is a useful and widely used tool for chemical analysis; because of the low cross section, a strategy to improve the signal until the safety exposure limits not exceeding laser radiation is investigated. The European directive 2006/25/EC defines the maximum permitted exposure (MPE) for workers to artificial radiation according to exposure duration, wavelength, coherence of the radiation and beam divergence. In this work, we will address the problem of optimizing these parameters to maximize the Raman echoes.

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