

A selectable multiwavelength laser for outputting visible light

BACKGROUND

Solid-state Raman lasers are a practical and efficient approach to optical frequency down conversion, offering high (up to 70 to 80%) conversion efficiencies with respect to the pump power, excellent beam quality and ease of alignment. In recent years use of crystals for stimulated Raman scattering (SRS) has been gaining interest because, in comparison with high-pressure gaseous and dye (liquid) Raman lasers, crystalline Raman lasers offer better gain, better thermal and mechanical properties, and the ability to operate at high pulse repetition frequency. Further they are compatible with compact all solid-state laser technology.

Solid-state lasers are commonly used in the ophthalmological and dermatological fields. For these applications there is commonly a need to have available a range of different wavelengths to optimally treat a range of patient conditions.

OUR SOLUTION

The invention provides a laser system where the output can be selected from two or more different wavelengths of output laser light.

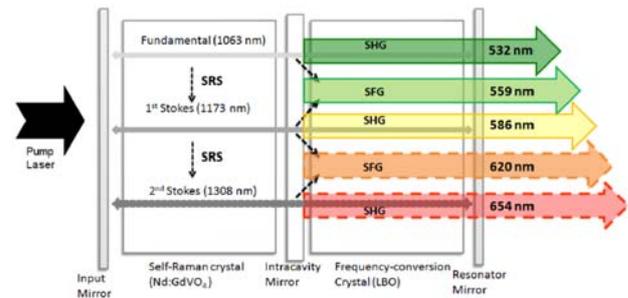
The system comprises a laser capable of having at least two different wavelengths of laser light resonating in the cavity simultaneously. One of the frequencies is generated by a Raman crystal which shifts the frequency of light generated by the lasing medium. A tunable non-linear medium, such as LBO, is provided in the cavity for selectively frequency converting at least one of the at least two different wavelengths of laser light.

The conversion may be SHG, SFG or DFG for example. A tuner is provided to tune the non-linear medium to select the wavelength to convert. Temperature tuning or angle tuning of the non-linear medium can be used. A Q switch may also be provided in the cavity. The output laser beam can be used for treatment, detection or diagnosis of a selected area on or in a subject, and can be used in ophthalmological and dermatological fields.

APPLICATIONS

- ✓ Ophthalmic industry
- ✓ Dermatology

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ADVANTAGES	BENEFITS
Compact	Transferable
Low production cost	Affordable
Multi-functional	Achieve several wavelengths from one laser device

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INTELLECTUAL PROPERTY POSITION

A selectable multiwavelength laser for outputting visible light

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COMMERCIAL OPPORTUNITY

Seeking a partner to commercialise this technology in the applications identified.

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