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Title: Dual-wavelength Nd:YAG crystal laser at 1074 and 1112 nm

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Abstract: We reported an efficient laser-diode (LD) end-pumped CW dual-wavelength Nd:YAG crystal laser operating at 1074 and 1112 nm simultaneously, for the first time to our knowledge. The maximum output power was 3.15 W with an optical conversion efficiency of 23.6%. Considering the broad absorption of carbonylhemoglobin and hemoglobin located at about 538 and 555 nm, respectively, we proposed that this dual-wavelength laser is an important source for detecting carbon monoxide poisoning by simple frequency doubling.