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Repozytorium

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Synthesis and optical properties of $KZnLa_{0.99}Nd_{0.01}(VO_4)_2$ triple vanadate(V)—new promising laser materials.

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Streszczenie

In an attempt to find a neodymium–vanadate system with long lifetime of $^4F_{3/2}$ level and relatively strong $^4F_{3/2} \rightarrow {}^4I_{11/2}$ emission for laser applications, the optical properties of Nd^{3+} in a new $KZnLa(VO_4)_2$ host is reported. The crystalline samples were obtained at 900 °C in air. The samples were crystallized in monoclinic system and were isostructural with $KZnLa(PO_4)_2$. $KZnLa_{0.99}Nd_{0.01}(VO_4)_2$ strongly emits in the near infrared range with the maxima at 871.6 and 1057 nm upon excitation through the $^4F_{5/2}$ level (808 nm) or by the charge transfer bands of VO_4^{3-}. The lifetime of $^4F_{3/2}$ level of Nd^{3+} ion is larger than that observed in other neodymium–vanadates systems.

Słowa kluczowe

Synthesis, Absorption spectra, Luminescence spectra, Lifetimes, Nd3+, Vanadates

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