

两种新型有机激光染料的合成、结构和上转换 发光性质

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**摘要** 合成了两个新的有机晶体: 反式-4-[4'-(N-羟乙基-N-甲基氨基)苯乙烯基]-N-甲基吡啶对甲苯磺酸盐trans-4-[4'-(N-hydroxyethyl-N-methylamino)styryl]-N-methylpyridiniumtoluene-p-sulfonate(简称HMASPS)和反式-4-[4'-(N-羟乙基-N-乙基氨基)苯乙烯基]-N-甲基吡啶对甲苯磺酸盐trans-4-[4'-(N-hydroxyethyl-N-ethylamino)styryl]-N-methylpyridiniumtoluene-p-sulfonate(简称HEASPS)。用X射线衍射方法对这两个单晶进行了结构测定。测试了它们频率上转换荧光及激光性质。在1064nm的ps脉冲激光的激发下, HMASPS和HEASPS在溶液中均发出~625nm的上转换荧光和激光, 并且有可观的激光效率。

**关键词** [有机染料](#) [激光染料](#) [苯乙烯P](#) [吡啶P](#) [苯磺酸P](#) [X射线衍射分析](#) [上转换激光](#)

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## Synthesis, structures and up-conversion luminescence properties of two new organic laser dyes

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**Abstract** Two new organic salts, trans-4-[4'-(N-hydroxyethyl-N- methylamino) styryl]-N-methylpyridinium toluene-p-sulfonate (abbreviated as HMASPS) and trans-4-[4'-(N-hydroxyethyl-N- ethyl-amino)styryl]-N- methylpyridinium toluene-p-sulfonate (abbreviated as HEASPS) have been synthesized. their structures were determined by X-ray diffraction method. Upon irradiation with a picosecond pulse laser at 1064nm, the solutions of HMASPS and HEASPS emitted up-conversion fluorescence at ~640nm and lased at ~620nm.

**Key words** [LASER DYES](#) [STYRENE P](#) [PYRIDINE P](#) [BENZENESULFONIC ACID P](#) [X-RAY DIFFRACTION ANALYSIS](#)

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