AMPL-2017

PULSED LASERS AND LASER APPLICATIONS

September 10–15, 2017
Tomsk, Russia

ABSTRACTS

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MEDIA SPONSORS

Atmospheric and Oceanic Optics Journal, Tomsk, Russia
Photonics Journal, Moscow, Russia

Scientific & Technical Translations
STT
PUBLISHING
Tomsk, 2017

1.94 mm thickness, for magnetic field of 0.86 T and for 650 nm light rotates polarization plane by an angle equal to 5°13'.

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B-13

INVESTIGATION OF PHOTO- AND ELECTROLUMINESCENCE OF ZINC AND BERYLLIUM METAL ORGANIC COMPLEXES

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Three decades have passed since the publication of the first light emitting diodes based organic compound 8-hydroxyquinoline aluminum (Alq3) [1] and devices based on OLED are producing in the industrial scale, but the synthesis of new compounds and their investigation is continuing. A number of goals are pursued: a high efficiency of the device, the radiation in the required spectral range, stable performance.

In this paper we investigated metal-organic complexes with zinc and beryllium $(Zn(AM\text{-}TAZ)_2$, $Be(TB\text{-}TAZ)_2$ and the $Be(AM\text{-}TAZ)_2$ Photoluminescence characteristics were studied in solutions and films. OLED-structures were established on the basis of these compounds. The greatest emission intensity is ~ 1000 cd/m^2 provides $Be(AM\text{-}TAZ)_2$. $Be(AM\text{-}TAZ)_2$ and $Zn(AM\text{-}TAZ)_2$ with different metal, have different intensity of brightness and spectral characteristics. The electronic and photoluminescence of OLED-structures coincide. The greatest emission intensity ~ 1000 cd/m^2 provides $Be(AM\text{-}TAZ)_2$. $Be(AM\text{-}TAZ)_2$ and $Zn(AM\text{-}TAZ)_2$ with different metal, have different intensity of brightness and spectral characteristics. The spectral characteristics of electrical and photoluminescence OLED structures coincide.

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B-14

SPECTRAL-LUMINESCENT AND LASING CHARACTERISTICS OF THIN-FILM STRUCTURES BASED ON SEMICONDUCTOR POLYMERS

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The creation of injection laser based on organic semiconductors is urgent direction of organic electronics [1]. The solution of this problem is impossible without investigating the emission features of thin-film lasers based on organic semiconductors by various types lasers photoexcitation, including laser diodes [2–4].

The report presents the spectral-luminescent and lasing characteristics of copolyfluorenes and polyphenylenevinilene derivatives pumped by the third harmonic of YAG : Nd^{3+} laser. Copolyfluorenes were synthesized at the Institute of Macromolecular Compounds RAS. Also spectral-luminescent characteristics of thin-film structures by pulsed diode pumping were investigated. Thin-films based on selected semiconductor polymers were used as laser active medium.

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