**Calculations of laser without inversion in cupper vapor**

**Abstract**

The numerical simulation of copper laser gain and lasing without inversion has been made. The two problems were researched: 1) the usual laser without inversion on λ-configuration with incoherent pump on the transition 1-2 (λ = 325.0 nm) and strong monochromatic coherent field on transition 2 – 3 (λ = 510.6 nm); 2) coherent modulated strong field on λ=510.6 nm and lasing on transition 1-2 (λ = 325.0 nm) because new parametric polarization sources. The calculations with real experimental parameters for copper medium (N0 = 1018 cm-3) in special copper source were made.

*Conferences and publications:*

1. S.A. Pulkin, T.H. Yoon, V.V. Kozlov, O.S. Blinnikov, A.S. Sumarokov, The influence of laser field noise on the EIT and two-photon resonances in optical clock// International conference “Laser Optics 2010” (LO-2010), Saint-Petersburg, July 2010.
2. Kolesnikov I.E., Korotkov V.I., Pulkin S.A., Arnautov V.A., Sumarokov A.S., Tikhonov K.S., Measurements of laser wavelength by interferometric diffractometer // International conference “Laser Optics 2010” (LO-2010), Saint-Petersburg, July 2010.
3. V. Arnautov, S. Pulkin, S.Uvatova, M. Savel’eva, A. Sumarokov, V. Shevtsov, Long-living memory cell in quantum dots // International workshop nonlinear photonics: theory, materials, applications, Saint-Petersburg, August 2011.

**Расчет лазера без инверсии на парах меди**

**Аннотация**

В работе было исследовано усиление без инверсии в лазере на парах меди. Были рассмотрены два случая: 1) усиление без инверсии в λ-схеме атома с некогерентной накачкой на переходе 1 – 2 (λ = 325.0 нм) и сильном монохроматическом когерентном поле на 2 – 3 (λ = 510.6 нм); 2) возникновение новых источников поля на частотах модуляции сильного поля (λ = 510.6 нм), на 1 – 2 действует пробное поле (λ = 325.0 нм). Проведены численные расчеты с реальными параметрами меди (N0 = 1018 см-3).

*Участие в конференциях:*

1. S.A. Pulkin, T.H. Yoon, V.V. Kozlov, O.S. Blinnikov, A.S. Sumarokov, The influence of laser field noise on the EIT and two-photon resonances in optical clock// International conference “Laser Optics 2010” (LO-2010), Saint-Petersburg, July 2010.
2. Kolesnikov I.E., Korotkov V.I., Pulkin S.A., Arnautov V.A., Sumarokov A.S., Tikhonov K.S., Measurements of laser wavelength by interferometric diffractometer // International conference “Laser Optics 2010” (LO-2010), Saint-Petersburg, July 2010.
3. V. Arnautov, S. Pulkin, S.Uvatova, M. Savel’eva, A. Sumarokov, V. Shevtsov, Long-living memory cell in quantum dots // International workshop nonlinear photonics: theory, materials, applications, Saint-Petersburg, August 2011.