

**ABSORPTION FEATURES OF "L $_{\alpha}$  DAMPED" TYPE IN SPECTRA OF VERY DISTANT QSO AS AN INDICATOR OF YOUNG CLUSTERS OF GALAXIES**

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It is shown that at present one can not exclude a possibility that rare, wide and deep absorption feature of  $L_{\alpha}$  damped type could be formed in a rich gas medium of distant clusters of galaxies, not verialized yet. In future massive galaxies are likely to be formed in the central regions of these clusters. Nuclei of these galaxies become very active during a short time, i.e. they pass a stage of QSO. Narrower absorption lines of metals and/or 21 cm associated with  $L_{\alpha}$  damped systems can be formed in the clouds belonging to separate galaxies of these clusters.

On the basis of the process described above one can make some observational conclusions concerning characteristics of absorption lines of "L $_{\alpha}$ -damped" type:

- 1) scales of absorbing region can reach hundreds of kiloparsecs;
- 2) "L $_{\alpha}$ -damped" features can not be observed at low  $Z$ , because of strengthening of  $X$ -ray radiation emitted by hot gas in the central regions of near rich clusters.
- 3) velocities of metal absorption lines associated with "L $_{\alpha}$ -damped" features can differ up to hundreds of km/s from  $Z_{damp}$ ;
- 4) widths of "L $_{\alpha}$ -damped" absorption lines can reach hundreds of km/s and correspond to the dispersion of velocities in young systems of galaxies;
- 5) under assumption that  $T_s^{gas} \gg T_{background} = 2.7(1 + Z_{damp})$ , gas in a young system of galaxies can emit a flux about  $1 mJy/\square^{\circ}$  in 21 cm line with  $\lambda = 21 \text{ cm} (1 + Z_{damp})$ .