

**Space-time Compression of Atom Beam in the Distance Analysis of Planets Surfaces,**  
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A. NESTEROVITCH, V. OSTANIN, MEPHI - Space-based ion accelerator complex can be used for analysis of planet surface. To obtain high density of ion beam on the target the method of space grouping of accelerated ions proposed. According to this method, accelerator must generate ion beam with increasing energy of particles during beam pulse. In order to formulate requirement to RF system parameters beam dynamics in linac is considering. The energy modulation can be carried out by changing amplitude or phase of RF field or both simultaneously. A choice from energy modulation methods depends upon accelerator construction and the beam dynamic in it. The paper describes results of calculation beam dynamics made for linac with single gap resonators. The calculation takes into account beam loading effect. It is shown, that for accelerator resonators with Q-factor about 1000 and frequency 300 MHz, phase modulation of RF field within 10 degrees in micro second can be achieved with power level increasing about (1-2)%. It is possible for realizing without considerable change of the amplifier power. The dependencies of RF power level and resonator field phase versus filling time are given.