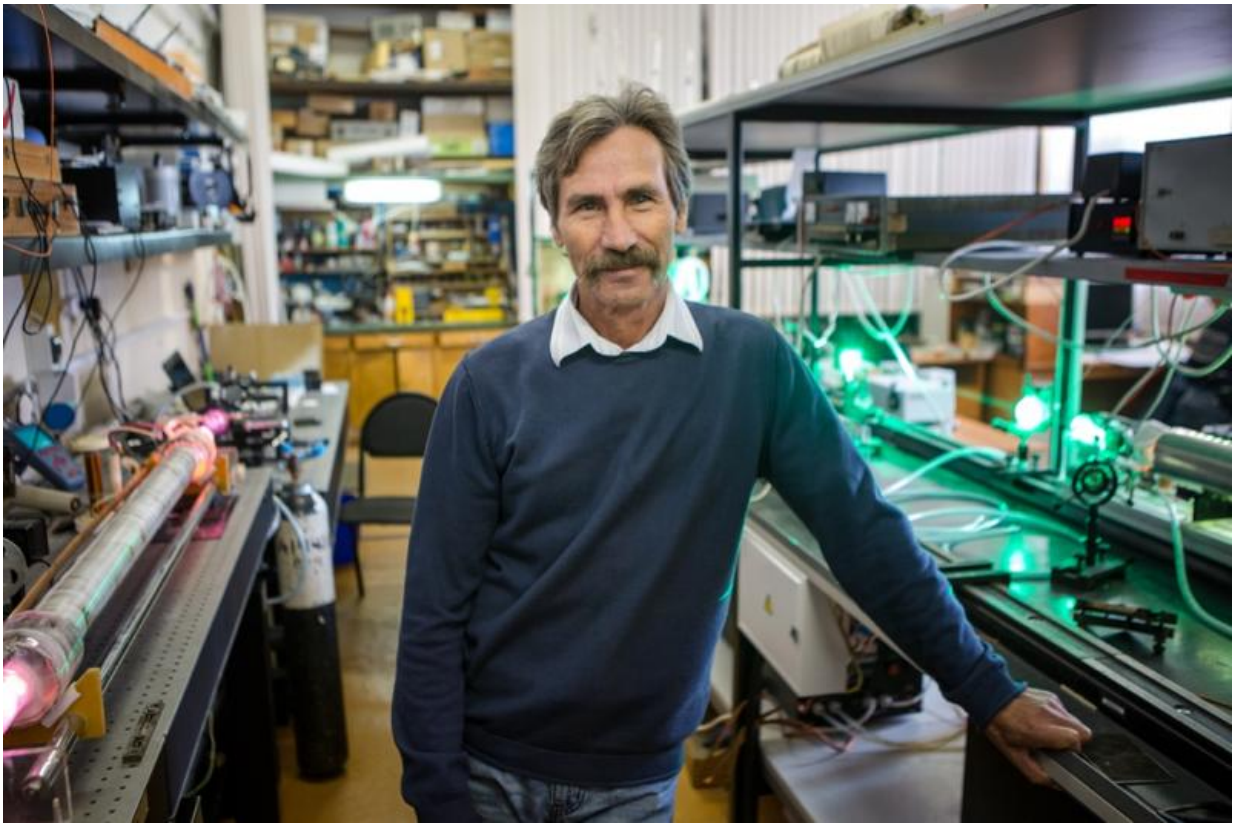
New laser device to help pilots land aircraft in bad weather

October 12 2016



Credit: Tomsk State University

The staff of the Tomsk State University with colleagues from the Pulslight Ltd company (Bulgaria) have invented a multi-wavelength laser, MLM-01, using a metal vapor of copper, strontium, calcium and

barium. The new system can be used to provide reliable navigation of planes and ships in low visibility conditions.

"Functional characteristics of the laser are determined by its active medium. It affects the range of wavelengths at which the installation can work," says Aleksey Shumeyko, one of the main developers. "For example, the use of copper bromide provides radiation in the yellow-green region of the spectrum. It can be used in laser microscopes and in the luminance amplifier, and also for the treatment of skin disorders in dermatology."

When using calcium as the active medium, the installation operates at a frequency of 5 microns – the average area of the IR spectrum of the radiation. This can be used to break the bonds of complex organic molecules and to create genetic modifications in biology and medicine.

In addition, the development of TSU scientists can be applied in many other areas, in particular for navigating airplanes and ships in low visibility conditions.

"The laser, which uses a barium as the working medium, radiate 1.5-3 microns in the invisible range," explains Shumeyko. "Such radiation is easily visible recording systems, but the beam does not blind pilots."

Provided by Tomsk State University