

millions of mosquitoes that would be required in order to use SIT at the a larger scale needed to protect cities from disease transmission, said Rui Cardoso-Pereira, an SIT expert at the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture.

Finding alternative methods for what insiders call the ‘sexing’ of mosquitoes is the focus of an ongoing five-year coordinated research project that began in 2013 under the auspices of the Joint FAO/IAEA Division, with the participation of experts from 13 countries.

### No optical illusion

Researchers at TRAGSA, the Spanish government’s institution focusing on environmental sciences and services, have now built the prototype of a device capable of differentiating male and

female mosquitoes using via artificial vision technology and then eliminating the females using laser beams. The device consists of a rotating disk to distribute the mass-reared pupae, which are then analysed using software that can distinguish the sexes based on size, explained Ignacio Plá Mora of TRAGSA’s Pest Control Department.

The preliminary results of the tests conducted have shown that 99.7% of the females were eliminated, while up to 80% of the males survived and could be released, Plá Mora said. “The results achieved are highly satisfactory compared to those obtained by the manual methods that are currently used,” he said.

While the prototype can process a million *Aedes* males a day, it still does not quite scale up to the level

of industrial production required at a regional scale. However, it will be satisfactory for projects targeting individual towns or villages, particularly in countries where the labour costs associated with manual sorting of mosquito pupae are prohibitive, said Cardoso-Pereira. Further research to perfect the method is ongoing, in order to eliminate fewer males and to scale it up further.

TRAGSA’s participation in the coordinated research project has helped it in the development of the new method. “When top experts in an area work together, everyone’s research accelerates,” Cardoso-Pereira said.

— *By Miklos Gaspar*

## Armenia’s physics research legacy saved through pixels

More than 1000 destroyed research papers on high-energy physics and astrophysics have been recovered in Armenia thanks to digital copies saved at the IAEA’s International Nuclear Information System (INIS).

For over 25 years, thousands of research papers held by the library of the inadequately-funded Yerevan Physics Institute (YerPhI) were locked away in dusty storage rooms. They had become so dirty that it was impossible for them to be cleaned without causing damage.

“In the 60s, 70s and 80s we distributed our research papers to all large laboratories and transferred them to the IAEA,” said Ashot Chilingarian, Director of YerPhI. “Fortunately, INIS had digitized and preserved all the archives, which are now accessible to us in digital form. They have been literally saved.”

In May 2016, after YerPhI was granted the status of National Laboratory, its management asked the IAEA for help to reconstruct the old archives. IAEA

staff provided YerPhI with the research papers in digital form and helped them to set up a digital scientific repository. Through the repository, the team has made all the recovered research papers available online at [ivenio.yerphi.am](http://ivenio.yerphi.am).

Scientists at YerPhI conduct research in the fields of high-energy physics and astrophysics and collaborate with international partners using the world’s biggest accelerators and cosmic ray detectors, Chilingarian said. They have been collaborating in international experiments since the 1980s. Today YerPhI publishes approximately 30% of Armenia’s research papers and plans to add all new research publications to the repository.

“The project has not only allowed YerPhI to acquire and reuse the lost scientific information, but has also introduced modern technologies to support the operation of Armenia’s research facilities,” said Zaven Hakopov, INIS coordinator at the IAEA. Based on Armenia’s example, the IAEA plans to assist more countries to create national nuclear



Photo: YerPhI

information repositories to stimulate research and development, he added.

INIS is operated by the IAEA and hosts one of the world’s largest collections of published information on nuclear science and technology. It contains four million bibliographic records accessed by over two million users worldwide every year. Through INIS, the IAEA is able to gather nuclear data, information and knowledge resources on the peaceful use of nuclear energy and makes this available to its Member States, contributing to advancing research and development and helping countries achieve the United Nations Sustainable Development Goals.

— *By Laura Gil*