

PHYLAX

Contactless detection of explosives at security checkpoints



brief description

PHYLAX* is a laser-based system for the contactless detection of explosive traces on shoes. People at checkpoints, e.g. at airports, can be examined quickly and reliably by means of laser spectroscopy.



goals

Complete screening of every person at checkpoints for explosives without any additional effort.

Increased security while simplifying control processes for both, passengers and flight personnel.



applications

- security checks
- passenger screening
- access control at airports, train stations, and critical infrastructures
- protection of public buildings, venues and state institutions

advantages

- increased security by checking every single person
- simplification and acceleration of control processes
- reduced staff / saving of personnel
- can be extended to other hazardous substances, e.g. narcotics



involved

Institute of Technical Physics

Institute of Robotics and Mechatronics



facts and figures

- detection of traces of explosives on shoe surfaces
- duration of check: < 5 seconds
- detection distance: \approx 1 meter
- mobile device
- easy handling

- measurements: 75 x 75 x 80 cm³
- weight: 150 kg
- level of development: laboratory model

*PHYLAX: Personal hybrid laser-based explosives detection



PHYLAX

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PHYLAX* is a laser-spectroscopic technology for the detection of explosives on people in access areas. The automatic system detects traces of explosive substances on shoes from a distance of about one meter in less than five seconds without physical contact. The inspection of the shoe surface is conducted while the person is standing still for a few moments in the inspection area. After the inspection, the system shows immediately whether an explosive substance has been detected. The control is contactless and takes place without additional time or interaction being needed.

PHYLAX offers numerous advantages for authorities with security tasks, political institutions and stakeholders at all levels. The system can be used to check people at access portals, e.g. at airports, train stations, at major events, at state institutions and other critical infrastructures that are open to the public. Compared to other technologies, the innovative technology of PHYLAX excels in terms of its fast reaction times and the achievable control distance. Application of the technology increases civil security in public spaces, as every single person passing through the checkpoint can be screened for explosives. At the same time, the control process is made more efficient and economical, since no additional control steps or specialists are required. This technology can also be extended to other substances, such as illegal narcotics. Likewise, not only shoes, but also luggage and other surfaces can be examined in the long term.



A laboratory model (technology readiness level ~ 4) of the system was developed at the DLR Institute of Technical Physics, demonstrating the functionality of the technology.

Over the next few years, this system will be optimized and tested in non-laboratory environments. The level of technology development will be raised to the level of a prototype, in order to enable industrial transfer.

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