Soggetto coordinante	Università di Padova
Titolo del progetto	Modular Detection System for special nuclear material
Acronimo	MODES_SNM
Descrizione del progetto	Special Nuclear Materials are difficult to detect, especially when masked or shielded: gamma rays and neutrons emitted by SNM have to be detected in order to increase the sensitivity against natural background. These objectives will be pursued by optimizing a novel technology recently developed, allowing the detection of all relevant radiation types and to engineer a prototype of a modular, compact, mobile detection system that will be qualified under laboratory conditions. Moreover, it will be commissioned in an on-field campaign driven by the end-user group established in the project. The campaign will focus on both performance and usability aspects including the verification of the man-machine interface. The MODES_SNM system shall satisfy two major requirements: 1) improving the state of art in detection of radioactive and Special Nuclear Material in terms of sensitivity for shielded SNM; 2) being usable by emergency responders in the field filling the gap between Radiation Portal Monitors and hand-held devices.
TA/SG	TA 6
Riferimento Bando	Call FP 7 - 2011
Valore del progetto	**€** 3.282.051,20
Pubblicazioni	1) **High rate read-out of LaBr(Ce) scintillator with a fast digitizer** *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, *Volume 678*, *21 June 2012*, *Pages 83-87* L. Stevanato, D. Cester, G. Nebbia, G. Viesti, F. Neri, S. Petrucci, S. Selmi, C Tintori **(TA6_TRL_110-3)** 2) **Radiological risks from irradiation of cargo contents with EURITRACK neutron inspection systems** *Radiation Physics and Chemistry*, ***In Press, Corrected Proof***, *Available online 11 April 2012* E. Giroletti, G. Bonomi, A. Donzella, G. Viesti, A. Zenoni **(TA6_TRL_110-1)**

	3) **On the use of a (^{252}Cf–^{3}He) assembly for landmine detection by the neutron back-scattering method** *Applied Radiation and Isotopes*, *Volume 70, Issue 4*, *April 2012*, *Pages 643-649* N. Elsheikh, G. Viesti, I. ElAgib, F. Habbani **(TA6_TRL_110-1)** 4) **Special nuclear material detection with a mobile multi-detector system** *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, *Volume 663, Issue 1*, *21 January 2012*, *Pages 55-63* D. Cester, G. Nebbia, L. Stevanato, G Viesti, F. Neri, S. Petrucci, S. Selmi, C. Tintori, P. Peerani, A. Tomanin **(TA6_TRL_110-1)** 5) **Light output of EJ228 scintillation neutron detectors** Original Research Article *Applied Radiation and Isotopes*, *Volume 69, Issue 2*, *February 2011*, *Pages 369-372* L. Stevanato, D. Fabris, Xin Hao, M. Lunardon, S. Moretto, G. Nebbia, S. Pesente, L. Sajo-Bohus, G. Viesti **(TA6_TRL_110-1)** 6) **A proton recoil telescope for neutron spectroscopy** Original Research Article *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, *Volume 613, Issue 1*, *21 January 2010*, *Pages 58-64* A. Donzella, M. Barbui, F. Bocci, G. Bonomi, M. Cinausero, D. Fabris, A. Fontana, E. Giroletti, M. Lunardon, S. Moretto, G. Nebbia, M.M. Necchi, S. Pesente, G. Prete, V. Rizzi, G. Viesti, A. Zenoni **(TA6_TRL_110-1)**
Curriculum	Giuseppe Viesti