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is supported by:*

The NATO Science for Peace
and Security Programme

Development of an Advanced X-Ray Generator Based on Compton Back-Scattering (ref. 977982)

Beginning in January 2003, a team of researchers from the Netherlands, Ukraine and Russia, has collaborated to develop NESTOR ("Next-generation Electron STOrage Ring"), a novel Compact Laser-Electron X-ray Source, together with the development of the X-ray optical and diagnostic system for this new X-Ray source. Up to now, the high power RF, magnetic, and vacuum system designs for NESTOR facility have been completed, and the dipole, quadrupole and sextupole magnets for the NESTOR lattice have been fabricated, delivered and tested. The electron linear accelerator injector of 100 MeV and the Injection transportation channel have been assembled and tested. In the following months the completion of the design work for the optical system is planned, in parallel with the successful beam transport up to the end of the transfer line.

The primary product of the project will be a beam of intense Compton back-scattering X-Rays and synchrotron radiation from bending magnets useful for scientific research and technological or medical applications. To this end contacts have been established and are being maintained with end users who are interested in utilizing NESTOR's light. So far they include:

- the Institute of Solid State Physics, Materials Science and Technologies (Kharkov, Ukraine)
- the Grigoriev Institute for Medical Radiology (Kharkov, Ukraine)
- the L.T. Malaya Institute of Therapy (Kharkov, Ukraine)
- the Institute of Metal Physics (Kiev, Ukraine)
- the Institute for Single Crystals (Kharkov, Ukraine)

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Effective Start Date: 02/01/2003

Duration: 3 years (originally) 8 years (revised); expected completion by December 2011

Web site:

<http://ssrl.slac.stanford.edu/nestor>



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* Turkey recognises the Republic of Macedonia with its constitutional name.