

107 available technologies



Information and Communication Technology (13)

1. Universal program system for data mining, pattern recognition and forecasting.
2. Sub-nanosecond impulse semiconductor switches.
3. Application software for PC and supercomputers for the design of deformation mode and stability of large spatial structures in civil engineering.
4. Software for nuclear magnetic resonance spectroscopy and molecular modeling of proteins.
5. Voice command-and-control system API for mass-market mobile devices.
6. Online analysis system for financial markets.
7. Algorithms and software to support analytical actuarial activities.
8. Commercial system for customer environment analysis and visualization.
9. A cognitive real-time intelligent system for operating control. *
10. Crypto-algorithm "Gamma9" for data protection or erasure of data. *
11. New type of Giga- and Tera-Hertz electromagnetic radiation source, detector and spectrometer. *
12. Technology and applications of nitrogen-doped silica-core optical fibers. *
13. Algorithm for compression of static images.



Scientific Instruments and Methods (14)

1. Superconducting magnetic cryogenic system for the conductivity measurements of materials in wide temperature (0.3 - 300 K) and magnetic field (up to 20 T) ranges.
2. Portable infrared spectrometer for 1000-1600 nm wavelength range.
3. Gas- and ion-selective sensors on the base of supra-molecular systems.
4. High power single mode laser diodes and fiber-optic modules of 14XX nm wavelength region for Raman and Er³⁺ fiber pumping application.
5. High sensibility cathodoluminescent system for microprobe analyzers and raster electron microscopes.
6. System for acoustic nondestructive monitoring based on nonlinear acoustic effects.
7. High resolution triple Raman spectrometer with giant suppression of the residual light.

8. Portable Raman spectrometer integrated with a microscope.
9. Self-lubricating copper-molybdenum disulfide composite coatings.
10. Optical fiber sensors based on high-temperature Bragg gratings.
11. Effective mercury - free light and UV sources.
12. Velocity flow field measuring system for liquids and gases, based on digital particle imaging.
13. New type of sensitive far-infrared photo detectors for spectral measuring systems.
14. Sub-millimeter heterodyne sensor array based on semiconductor hetero-structures.



Earth Sciences (2)

1. Stratospheric balloon instrument of vertical gradients of the geomagnetic field for diagnostics of the Earth's crust structure.
2. Experimental mobile system for elastic energy release registering at rock fracture and prediction of dynamic events of rock pressure.



Life Science and Medicine (41)

1. Laser optoacoustic tomography of breast cancer at early stages.
2. Novel gerontoprotective food supplements based on plant extracts (from Russian flora), containing physiologically active flavonoids and terpenoids.
3. Microbiological fertilizer containing complex of symbiotic and beneficial rhizosphere microflora.
4. Remote diagnostics of hypoglycemia in people with diabetes.
5. Readily accessible and highly sensitive technology for molecular detection of viroids and plant viruses; construction of a pilot set of devices for large-scale diagnostics.
6. Medical laser equipment for local hyperthermia of cartilaginous tissues.
7. A "Bio-artificial liver" device.
8. Photochemical technology for production of calcium folinate (for anticancer and antianemia therapy). *
9. Scanning flow cytometer for express identification and characterization of blood cells and microorganisms in single particle assay.
10. Acoustic microscope for diagnostics in medicine and biology.

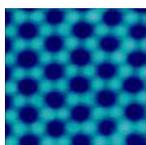
11. Device for on-line monitoring of biotissue laser vaporization processes based on autodyne detection of backscattered radiation for laser surgical devices of series "Lancet".
12. Device for intra-coronary beta radiation restenosis therapy.
13. Technology for quantitative assay and single nucleotide polymorphism assay of hepatitis C virus RNA by the real time PCR method.
14. New metal polymer composites for development of highly effective catalytic synthesis of A, E, and K- vitamins in- intermediates.
15. Peptide monoploid analgetics, remedies of osteoporosis treatment on the basis of synthetic analogs of calcitonin "active site", so as preparation of monovalent anticalcitonin antibodies. *
16. Technology for profiling of ion-exchange membranes and manufacture of experimental membrane apparatus for high-intensive electro dialysis.
17. New anti-stroke remedy "Semax-1% solution" (manufacture and introduction to the clinical practice).
18. Novel medicine for treatment of burns, ulcers and scars of different origin.
19. Biochips and analyzing equipment for detection of *M.tuberculosis* drug-resistant strains.
20. Express techniques for determination of biologically active compounds for out-of-laboratory diagnostics.
21. Light filter goggles of mass demand for ophthalmologic patients and low vision persons at various eye pathologies.
22. Genome fingerprinting technologies for identification and passportization of different carp breeds (*Cyprinus carpio*).
23. Wide range photo-sensitizer for photodynamic therapy.
24. Proteomic diagnostic-differential display for cytochromes P450 of human peripheral lymphocytes.
25. Low molecular-weight derivatives of chitin and chitosan.
26. Technology for Diagnostics and Genotyping of Hepatitis C Virus on the basis of PCR Analysis and Biochip Methodology and Production of New Generation of Diagnostic Kits.
27. New drugs for cancer therapy including cytotoxic drug, tumor necrosis factor-alpha and glucosaminylmuramyl peptide.
28. Piezoelectric ceramic composite materials and transducers of a new generation with linear and convex electronic scanning for ultrasonic medical diagnostic devices.
29. Digital scanning imaging gamma camera for medical diagnostic.
30. Computer-based system for the functional investigations in cardiology.
31. New method of preparation of DNA chips for DNA diagnostics. *

32. Design and development of a system for micro-bubbles detection and analysis in arterial circuit of the oxigenerator during artificial blood circulation procedure. *
33. Multifunctional photometer – spectrum analyser for biomedical applications. *
34. Effective UV source for fast disinfection of egg shells and hatchery floors. *
35. Technology and application of collagenase, made from king crab *Paralithodes camtschaticus*. *
36. Laser reshaping of cartilage. *
37. Medical techniques and a laser ophthalmologic complex for inoperative (therapeutic) treatment and prophylaxis of the common eye disease. *
38. Express method for functional diagnostics, based on the analysis of structural and functional features of eye conjunctiva micro-vessels. *
39. Laser opto-acoustic tomography for the early diagnosis of breast cancer. *
40. Neutron generator with sealed tube for cancer therapy.
41. Biotechnology of selenium-containing pharmaceuticals based on the blue-green algae *Spirulina platensis* matrix. *



Environment (7)

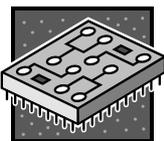
1. New reference samples (standards) on the basis of fluorine-containing compounds for analytical determination of the content and level of organic pollutants.
2. Novel method and apparatus for ultra - high sensitive detection of organic and bioorganic compounds in liquids and gases.
3. New technology for purification and disinfection of air, based on photocatalysis phenomenon.
4. Automated sorption-chromatographic complex for highly sensitive express measurements of inorganic and organic substances.
5. Neutron installation for coal quality control.
6. Neutron moisture meter for control of wood's humidity on the conveyer belt.
7. Neutron activation technology for the control of content in mineral fertilisers.



New Materials, Nano-materials (11)

1. Elastic composites on the basis of rubbers and polymers with quasicrystalline and ceramic solid filling agents.

2. Development and synthesis of polymer organic materials for optical technologies. *
3. Technology of porous piezoceramic materials, intended for ultrasonic applications. *
4. Pneumo-circulation method of obtaining nano- and submicron powders. *
5. New technology for the production of quasi-crystalline reinforcing particles for composites*
6. New technology for polymer based composites. *
7. New effective nano-metalpolyorganosilicon ceramic precursors for fabrication of low-cost ceramic silicon carbide fibers. *
8. New type of high-performance far infrared and sub-millimeter photo-detecting system on telluride-base semiconductors. *
9. Scintillating fibers with an enhanced efficiency and light output.
10. Water-repelling compositions for silicate surfaces. *
11. High-performance technology of producing fine crystalline diamond powders (7–15 μm) for manufacturing composite materials and abrasive disks



Microelectronics, Nanotechnology (7)

1. Multilayer film structures technology for sensitive elements of the molecular-electronics transducers and high sensitivity sensor design for registration of the characteristics of the motion and oscillating fields.
2. Combined technological processes on the basis of circulating flow of multiphase systems for produce, synthesis and processing of submicron and nanosized powders of refractory composition.
3. Technology for production of sensor materials for real time monitoring and visualization of thermal fields of printed circuit board.
4. Device for surface nanostructures investigation.
5. Scanning probe microscope, adapted for joint functioning with scanning electron microscope for visualization, diagnostics and modification of micro- and nanostructures.
6. Electrochemical nanotechnology for scanning probe microscopy and spectroscopy (design of nano-structured test samples, supports with modifiable surfaces, and functionally modified tips).
7. New oxygen free ceramic polymer precursors – nano-metalpolycarbosilanes – for stabilized high strength and high temperature ceramics; fabrication of polymer's pilot batches for ceramic items.



Security (3)

1. Neutron generator based detectors for search of hidden high explosive materials.
2. Detectors for passenger luggage control to prevent unauthorized traffic of fissile materials.
3. Mine detector on the base of backscattering tomography. *



1. Dendrochronological dating of wooden constructions, historical and archeological monuments, and antiques.
2. New technology of superficial processing reinforced fabrics and manufacture of high strength glass plastics on a basic thermoplastic matrix.
3. System for monitoring of operational safety of building structures based on fiber- optic position pickup.
4. Novel technologies for olefins and dienes oligomerization and polymerization, as well as for production of their blends and co-polymers based on the catalytic systems, developed for the first time.
5. Technology for organosiloxane block copolymers production and manufacture of new thermo-stable and cold-resistant composites on the base.
6. Digital zip-code recognition unit.
7. Device for remote optical measurement of surface roughness.
8. Digital interferometry by low coherence source.
9. New technology for regional electromagnetic explorations in oil-producing and ore-bearing regions.

