

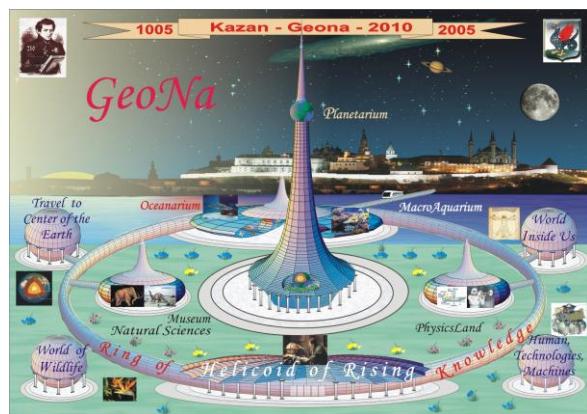
## Russian Scientific-Educational Project: Kazan-GeoNa-2017

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### Abstract

For the further successful development of educational and scientific - educational activity of the Russian Federation, the Republic Tatarstan, Kazan is offered the national project - the International Center of the Science and the Internet of Technologies. "GeoNa" (Geometry of Nature - "GeoNa" is developed - wisdom, enthusiasm, pride, grandeur), which includes a modern complex of conference halls (up to 4 thousand places), the Center the Internet of Technologies, 3D Planetarium - development of the Moon, PhysicsLand, an active museum of natural sciences, an oceanarium, training a complex «Spheres of Knowledge», botanical and landscape oases.



### 1. Introduction

Historically thousand-year Kazan city and the two-hundred-year Kazan university (Russia) carry out a role of the scientific-organizational and cultural-educational center of Volga region. In center "GeoNa" will be hosted conferences, congresses, fundamental scientific researches of the Moon, scientific-educational actions: presentation of the international scientific programs on lunar research; modern lunar databases, exhibition Hi-tech of the equipment, the extensive cultural-educational, touristic and cognitive programs. Center **GeoNa** will

enable scientists and teachers of the Russian universities to join to advanced achievements of a science, information technologies; to establish scientific communications with foreign colleagues in sphere of the high technology and educational projects with world space centers.

### 2. Computer center "GeoNa" and Center the Internet of Technologies

It is known, that each eight months the volume of the information in the advanced specialized databases received in scientific and technical areas is doubled. Modern GRID-system include separate computers, clusters, local networks, supercomputers, data bases, the communications, software packages: 40-Gb liaison channels, processor capacity 200 Teraflops ( $2 \times 10^{14}$  operations in a second), volume of disk - memory hundreds of Petab ( $10^{17}$  bytes), inclusion in global computer infrastructure GRID - EGEE (Europe). The "fast" Internet, Modern GRID system (40Gb liaison channel), fast data acquisition with the help modern the Internet of technologies, their processing, classification, three-dimensional visual representation of databases with time display on the basis of modern superfast and powerful computer complexes 3D Vision World Systems.

### 3. Travel to center of the Earth

3D and sensual demonstration of fundamental processes inside the Earth: movement of continents and tectonic plates, rotation of a liquid terrestrial core and generation of a magnetic field, magnetic storms, solar flashes and the polar lights, destructive earthquakes and fantastic eruptions of volcanos, global warming of the Earth, tsunami and tornado, formation of the Earth and minerals, generation of oil and gas deposits, paleontology, occurrence of the first plants, animal, Human.

### 4. 3D Planetarium

3D video-acoustic representation of the expanding universe, the dynamic world of colliding Galaxies and accretion black holes, system of bewitching planets around of the Sun and exoplanets about other

stars of our Galaxy, exploration of the Moon and asteroid hazard, distribution of a reasonable Life to the universe and scientific searches of extraterrestrial intelligence, research and development of near Space, creation of settlements on the next planets.

## **5. Physics Land**

Cognitively - training complex for children, schoolboys, students, adult, based on modern achievements of science and technology and their three-dimensional visual and sensual perception. The complex will contain more than 100 simulators and 200 demonstration automated platforms: Flight on the Moon and Mars, Formula - I, Falling in Black hole, Birth of the Universe, Rings of Newton, Machine of time. The complex can simultaneously accept up to 500 children with parents and school teachers.

## **6. Ring of Knowledge**

Personifies infinity of a way of Knowledge at the limited opportunities of the Human and the Civilization. The Ring connects all objects of a scientific - cognitive complex, showing the uniform approach and a method of researches of the World around of us. Expositions of the Ring will reflect all essential aspects and stages of development of a human Civilization

## **7. Museum of Natural Sciences**

Three-dimensional material and visual giants of an extreme antiquity full-scale realize the classical concept of a museum of antiquities on a modern scientific and technical basis, but with a real opportunity touch to great opening of the History of Natural Sciences and to construct by hands a History of the ancient Earth. The museum will contain more than 10 thousand accessible exhibits.

## **8. Human, Technologies, Machines**

The museum gives the general representation about techniques, technologies and inventions as about practical application of a science for satisfaction of daily needs of the people. On expositions of a museum it will be submitted more than 5000 exhibits: working models and stands of modern technologies, multifunctional robots, 3D visualization of the most complicated dynamic processes in the nature, a science, technique, the industries, in a society

## **9. Oceanarium**

Oceanarium (5 million litres) with a fresh-water segment, 20 thousand sea animals, including 30 sharks, coral reefs and plants. The unique transparent arch tunnel in length of 220 meters will

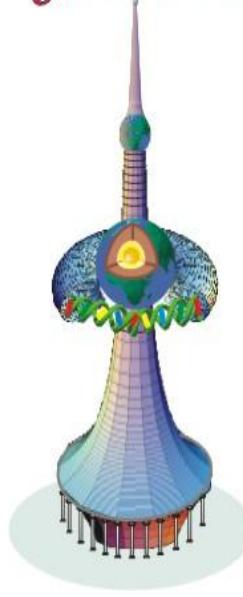
allow spectators to pass through water among fishes and predatory monsters. In a complex tropical jungle, a falls, the longest in the world a underwater tunnel, a circular panorama, a cinema hall with the three-dimensional image, underwater theatre, school of diving, the scientific-educational center, a conference hall, oceanic restaurant will be located.

## **10. Architectural project “GeoNa”**

The multi-functional scientific and educational complex "GeoNa" is set to become one of the most prestigious and impressive buildings in Kazan and one of the highest buildings of Russia. Its will be 215 m height (302 m including the spire). The total area of buildings: 245,000 sq. meters. The area of territory of the Center: 20 hectares. Budget of the project: 248 million Euro.

**Time table:** the first cubic meter of concrete of the base will plan to lay June 30, 2013 yr. The first part of the complex "GeoNa" will be open at August 30, 2017 yr

*GeoNa*



## **International partnership:**

[www.geona.ksu.ru](http://www.geona.ksu.ru)

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