

Russian – Italian cooperation in the field of fundamental space researches

**Dubna
18.12.2009**

Russian – Italian program RIM

SilEye - Russia, Italy and Sweden

NINA - Russia, Italy and Sweden

PAMELA - Russia, Italy and Sweden, and Germany

Silicon Eye (SilEye) 1995-2005



Cosmonaut Sergey Avdeev
carries out the experiment

From 1997 to 2005 experiments SilEye have been carried out at space stations Mir and ISS. The phosfen-phenomenon was studied. It is a sensation of unexpected light flashes in opinion cosmonaut's eye. This phenomenon is caused by high energy particles which get in an eye.



NINA

1998 -1999 onboard the russian satellite "Resurs-DK-01 №4"



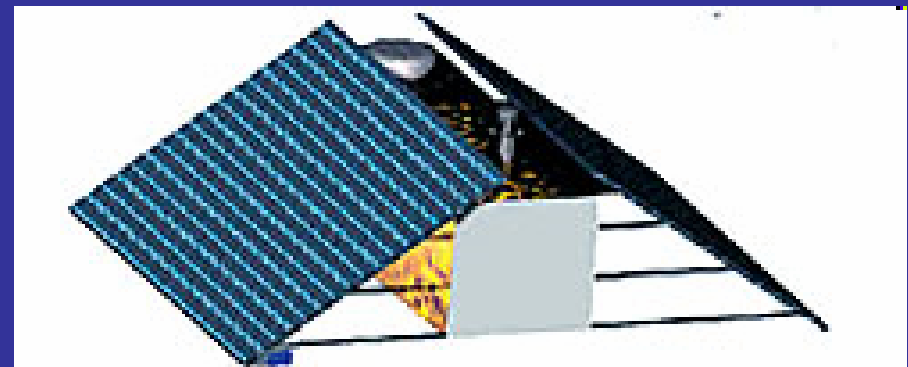
Spectrometer

New Instrument for Nuclear Analysis (NINA)

Measurement of streams of kernels of space beams of the galactic, solar and abnormal nature in a vicinity of the Earth from hydrogen up to iron in a range энергий from 10 up to 100 MeV/nuc1

NINA-2

July 2000 - August 2001 onboard the Italian satellite MITA



PAMELA

Resource DK 01



The launch date 15.06.2006

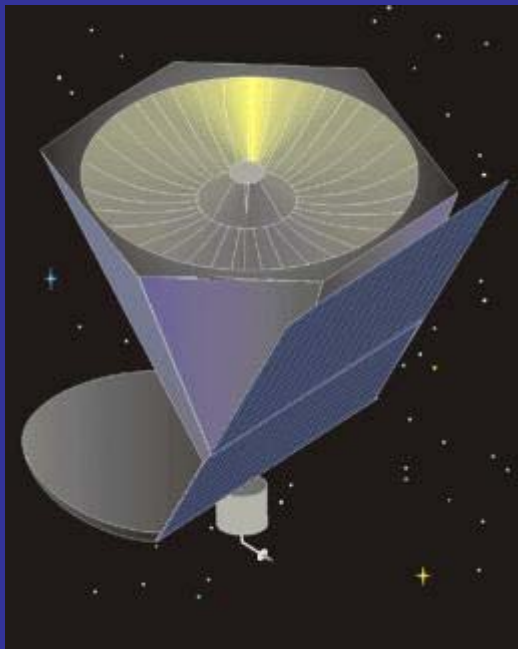
Inexplicable streams of positrons are fixed and the effect has been named «PAMELA abnormal effect».
It is the first experiment in space concerning to search of a dark matter.

Magnetic spectrometer PAMELA measures streams charged high energy space particles.
This telescope allows precision studies of the charged cosmic radiation to be conducted over a wide energy range (100 MeV - 100's GeV).

This device has been designed by collaboration of the Russian and Italian institutes.

Participants: professor A.Galper, professor P. Picozza, professor P.Spillantini and many others scientists.

MILLIMETRON

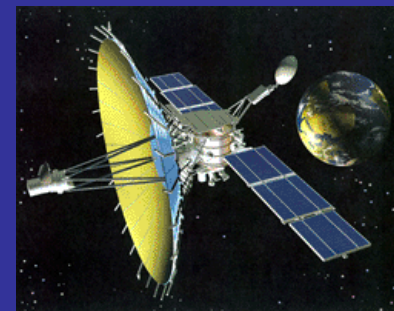


Launch is planed on 2016

ASI and ROSCOSMOS sign an agreement to cooperate for a super telescope Millimetron (D=12 m).

Italy will construct the spectrometer, a key instrument

RADIOASTRON



Launch is planed on 2010

Under consideration FOBOS-GRUNT



Launch is planed on 2011

Experiment TIMM-2,

a solar occultation spectrometer Mars atmosphere TIMM-1A with an extremely high spectral resolution (superior to 0.03 cm^{-1}) in the spectral range of 2.3-4.2 μm . It is dedicated to sensitive detection and measurements of minor constituents and isotopes of Mars atmosphere. Cooperation: IKI RAS and IFSI INAF

Experiment DIAMOND-2,

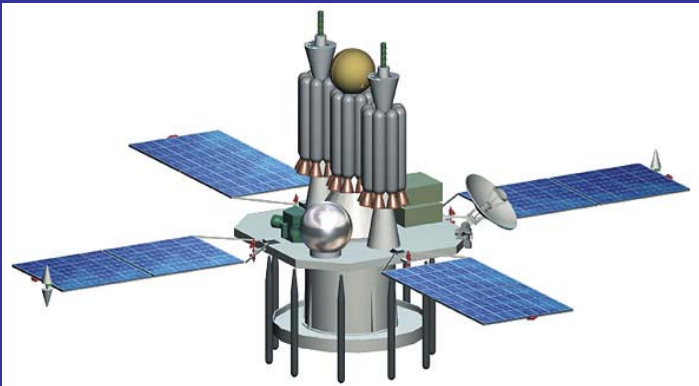
a dust particle detector for investigation a dust story at the Phobos . Cooperation: IKI RAS and AO diCapodimonte.

Experiment AOST,

a Fourier spectrometer for thermal sounding of Mars atmosphere and its constituents to infer diurnal cycles; measurements of Mars atmospheric composition in solar occultation, and mineralogical sounding of Phobos during the approach and after the landing. Cooperation: IKI RAS and IFSI INAF

Under consideration

Luna - Glob



Launch is planed on 2012

IR mapping spectrometer
for the spectral range of 1.4-3.6 μm . The primary goal of the experiment is the search for hydrated regions on lunar surface. The instrument will be under Italian responsibility.
Cooperation: IKI RAS and IFSI INAF

MAIN AREAS OF FUNDAMENTAL SPACE RESEARCH IN RUSSIA

Space plasma and the Solar physics:

- Studying of an internal heliosphere and the Sun from close distances;
- Studies of resonance interaction between electromagnetic radiation and charged particles of the Earth's magnetosphere;
- Studies of earthquakes' forerunners.

Research in astrophysics from space:

- High-accuracy astrometric measurements and precise definition of fundamental coordinate system;
- Astronomic objects observation in radio, ultraviolet, gamma, X-ray, millimeter and submillimeter ranges of spectrum.


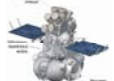
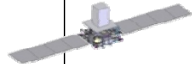

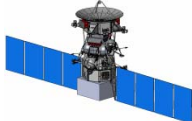
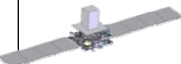

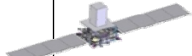
Planets and small bodies of the Solar System researches:

- Studies of atmospheres, magnetosphere and surfaces of the Solar System planets;
- Expansion of the Solar System's small bodies researches, including the studies of the Phobos ground samples.

Basic problems of space biology, physiology and medicine:

- Carrying out research programs on study of microgravity and other spaceflight factors influence on processes of biological objects adaptation.

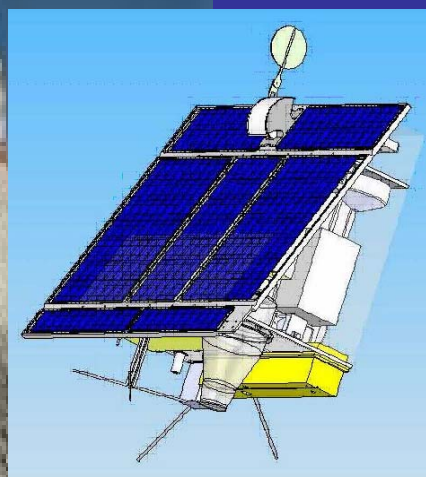
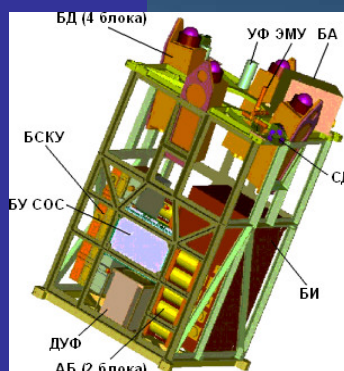
2009	2010	2011	2012	2012	2013	2014	2015
 Coronus-Photon	 SSC-FSR1,2	 WSO-UV	 Spektr-RG	 Luna-Glob, Luna-Resurs1 (India)	 SSC-FSR4	 InterhelioZond	 SSC-FSR5
	 Radioastron	 PHOBOS-GRUNT	 SSC-FSR3	 Resonance (4 SC)	 Gamma-400		

2016	2017	2018	2019	2020
 Millimetron	 SSC-FSR6	 Astrometria  Mars-NET	 Spektr-UFM	 Rentgen-2-XEOS  Mars-Grunt
 Venus-D		 Luna-Resurs 2	 Mercury-P	 Sokol-Laplace (Jupiter)
		 Terion-F2	 Roy (2-4 SC)	 Coronus-Stereo

Tatyana-2

Tatyana

January 2005 - March 2007



Roberto Oros di Bartini

14.05.1897 – 6.12.1974



ПРОБЛЕМЫ ТЕОРИИ ГРАВИТАЦИИ И ЭЛЕМЕНТАРНЫХ ЧАСТИЦ

Под редакцией
 д-ра техн. наук проф.
 Н. П. СТАНЮКОВИЧА
 и канд. физ.-мат. наук
 Г. А. СОКОЛИНА

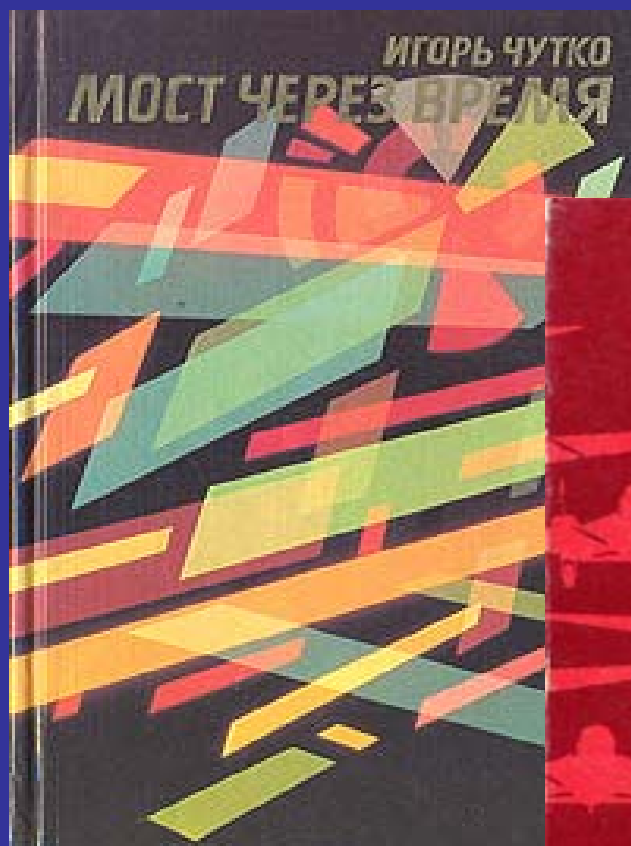


АТОМИЗДАТ МОСКВА 1966

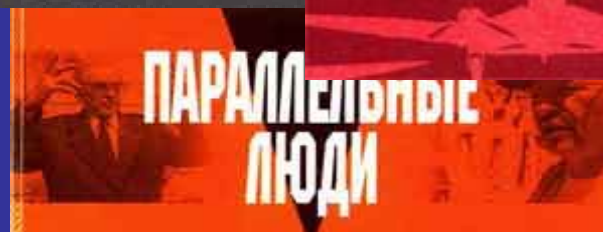
ПРОБЛЕМЫ КОСМОЛОГИИ

СООТНОШЕНИЯ
 МЕЖДУ ФИЗИЧЕСКИМИ ВЕЛИЧИНАМИ





The books about Bartini and his planes



Depth of creative idea of R.O. di Bartini puts him in one number of such outstanding creators of aviation and space engineering, as S.V.Ilyushin, O.K.Antonov, S.P.Korolev, G.N.Babakin.

Realization of the Russian-Italian Bartini-project on creation of the scientific satellite becomes a tribute of memory of R.O. di Bartini.

It is expedient also to found Bartini annual readings and conference covering areas of his activity: the aviation, the fundamental physics and the invention. The Russian and Italian organizations of the aviation and space industry, the scientific, educational and public centers could take part in realization of this project.

The international Bartini readings and conference will promote an establishment of informal character of Russian-Italian relationship, a maximal disclosing of potential of both countries, first of all in the high technology branches.

Studying of Bartini creative heritage will serve to development of personnel potential of the aviation, the cosmonautics and the fundamental science

Grazie per attenzione !