Science and Technology Center in Ukraine

Ukrainian Scientific Institutes and Universities

2013

Presented by
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The Largest Cities of Ukraine – Centers for Innovation

- Kyiv
- Dnipropetrovsk
- Lviv
- Odessa
- Donetsk
- Kharkiv
Thousands of technological products and innovations can be found in Ukraine
**Focus on:**

- Solid-state physics
- Physics of non-metal and liquid crystals;
- Physics of surfaces,
- Emission and plasma electronics,
- Electronic and atomic processes on solid surfaces;
- Laser and non-linear optics;
- Biophysics;
- Physics of radiation processes.

**R&D:**

- Laser systems and laser technologies;
- Radiation and plasma technologies;
- Precision control systems for low temperatures/Cryogenics
- Sensors and measurement devices

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Frantsevich Institute of Problems of Materials Science
Kyiv, Ukraine

Leading Ukrainian center of advanced scientific and engineering services, consulting, contract R&D in material science and advanced technology of metals, ceramics, nano-structures, composite materials.

Focus on:
- Chemical thermodynamics and modeling,
- Phase equilibria in systems of metals, high melting compounds, inorganic compounds, condensed systems, ceramics and nanostructures,
- Powder metallurgy parts, protective coatings, composite materials, basalt- and carbon-based materials, porous materials, wear-resistive components, electric contacts.

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SiC-C solid solution
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Physics Section of NASU

- Institute of Physics, Kyiv
- Lashkaryov Institute of Semiconductor Physics, Kyiv
- Kurdyumov Institute for Metal Physics, Kyiv
- Bogolyubov Institute for Theoretical Physics, Kyiv
- Institute of Applied Problems of Physics and Biophysics, Kyiv
- Institute of Electron Physics, Uzhgorod
- Galkin Institute of Physics and Engineering, Donetsk
- Usikov Institute for Radio Physics and Electronics, Kharkiv
- Verkin Institute for Low Temperature Physics and Engineering, Kharkiv
- Institute for Physics of Mining Processes, Donetsk
- Institute for Condensed Matter Physics, Lviv
- International Center ‘Institute of Applied Optics’, Kyiv
- ‘Reactiv-electron’ R&D Center, Donetsk
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Materials Science Section of NASU

- Paton Electric Welding Institute, Kyiv
- Frantsevich Institute for Problems of Materials Sciences, Kyiv
- Institute for Single Crystals, Kharkiv
- Institute for Scintillation Materials, Kharkiv
- Bakul Institute for Superhard Materials, Kyiv
- Institute of Pulse Processes and Technologies, Mikolaiv
- Institute of Thermoelectricity, Chernivtsi
- Nekrasov Iron and Steel Institute, Dnipropetrovsk
- Research Institute of Microdevices, Kyiv
- Karpenko Physico-Mechanical Institute, Lviv
- Institute of Metals and Alloys, Kyiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Mathematics Section of NASU

• Institute of Mathematics, Kyiv
• Institute of Applied Mathematics and Mechanics, Donetsk
• Pidstryhach Institute for Applied Problems of Mechanics and Mathematics, Lviv
• Mitropolsky International Mathematical Center, Kyiv

Informatics Section of NASU

• Glushkov Institute of Cybernetics, Kyiv
• Institute for Information Recording, Kyiv
• Space Research Institute under NAS and National Space Agency of Ukraine, Kyiv
• Institute for Machine Intelligence Problems, Donetsk
• Institute of Software Systems, Kyiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Mechanics Section of NASU

- Timoshenko Institute of Mechanics, Kyiv
- Institute of Technical Mechanics (Space), Dnipropetrovsk
- Pisarenko Institute for Problems of Strength, Kyiv
- Polyakov Institute of Geotechnical Mechanics, Dnipropetrovsk
- Institute of Hydromechanics, Kyiv
- ‘Transmag’ Institute of Transport Systems and Technologies, Dnipropetrovsk

Astronomy Section of NASU

- Main Astronomical Observatory, Kyiv
- Institute of Ionosphere, Kharkiv
- Institute of Magnetism, Kyiv
- Crimea Astrophysical Observatory, Crimea
- Institute of Radio Astronomy, Kharkiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Geosciences Section of NASU)

• Institute of Geography, Kyiv
• Institute of Geology and Geochemistry of Combustible Minerals, Lviv
• Institute of Geological Sciences, Kyiv
• Subbotin Institute of Geophysics, Kyiv
• Semenenko Institute of Geochemistry, Mineralogy and Ore Formation, Kyiv
• Institute of Problems of Nature Management and Ecology, Dnipropetrovsk
• Marine Hydrophysical Institute, Sevastopol
• R&D Center for Panoramic Acoustic Systems, Zaporizhia
• R&D Institute of Mining Geology, Rock Mechanics, and Mine Surveying, Donetsk
• Hydrometeorological Institute, Kyiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Power Engineering Section of NASU

- Institute of Renewable Energy, Kyiv
- **Coal Energy** Technology Institute, Kyiv
- **Gas** Institute, Kyiv
- Institute of Electrodynamics, Kyiv
- Institute of General Energy, Kyiv
- Institute for Safety Problems of Nuclear Power Plants, Kyiv
- Pidhorny Institute for Mechanical Engineering Problems, Kharkiv
- Pukhov Institute of Modelling Problems in Power Engineering, Kyiv
- Institute of Engineering Thermophysics, Kyiv
- R&D Center of Magnetism of Technical Objects, Kharkiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes
Nuclear Physics and Power Engineering Section of NASU

- Kharkiv Institute of Physics and Technology (KIPT), Kharkiv
- Institute for Nuclear Research, Kyiv
- Institute of Environmental Geochemistry, Kyiv
- Institute of Electrophysics & Radiation Technologies, Kharkiv
- Institute of Applied Physics, Sumy
- Institute for High-Energy Physics and Nuclear Physics, Kharkiv
- Institute of Plasma Physics, Kharkiv
- Institute of solid-state physics, materials science and technologies, Kharkiv
- Research and Training Center ‘Physical and Chemical Materials Science’, Kyiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Chemistry Section of NASU

- Vernadsky Institute of General and Inorganic Chemistry, Kyiv
- Pisarzhevsky Institute of Physical Chemistry, Kyiv
- Institute of Macromolecular Chemistry, Kyiv
- Chuiko Institute of Surface Chemistry, Kyiv
- Ovcharenko Institute of Biocolloidal Chemistry, Kyiv
- Institute of Bioorganic Chemistry and Petrochemistry, Kyiv
- Dumansky Institute of Colloidal and Water Chemistry, Kyiv
- Institute of Organic Chemistry, Kyiv
- Institute for Sorption and Problems of Endoecology, Kyiv
- Litvinenko Institute of Physical-Organic Chemistry and Coal Chemistry, Donetsk
- Bogatsky Physico-Chemical Institute, Odessa
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

Biochemistry, Physiology and Molecular Biology Section of NASU

- Palladin Institute of **Biochemistry**, Kyiv
- Bohomolets Institute of **Physiology**, Kyiv
- Zabolotny Institute of **Microbiology and Virology**, Kyiv
- Institute of **Molecular Biology and Genetics**, Kyiv
- Institute of **Cell Biology**, Lviv
- Kavetsky Institute of **Experimental Pathology, Oncology & Radiobiology**, Kyiv
- Institute for Problems of **Cryobiology and Cryomedicine**, Kharkiv
- International Center of **Molecular Physiology**, Kyiv
National Academy of Sciences of Ukraine (NASU) – Scientific Institutes

General Biology Section of NASU

- Center for **Megalopolis Eco-monitoring and Bio-diversity** Research, Kyiv
- Institute of **Food Bio-technology and Genomics**, Kyiv
- Kovalevsky Institute of **Biology of the Southern Seas**, Sevastopol
- Kholodny Institute of **Botany**, Kyiv
- Institute of **Hydrobiology**, Kyiv
- Schmalhausen Institute of **Zoology**, Kyiv
- Institute of **Cell Biology and Genetic Engineering**, Kyiv
- Institute of **Plant Physiology and Genetics**, Kyiv
Ukrainian Scientific and Technical Universities

- NTU-Kyiv Polytechnic Institute
- Taras Shevchenko National University, Kyiv
- Lviv Polytechnic National University
- Dnipropetrovsk National University
- Dnepropetrovsk State Technical University of Railway Transport
- Odessa Mechnikov National University
- National Aviation University, Kyiv
- National Aerospace University “Kharkiv Aviation Institute”
- Kharkiv National Automobile and Highway University
- Medical Universities
- Economic Universities
- Arts and Music Academies
- And many others
NATIONAL TECHNICAL UNIVERSITY OF UKRAINE
KYIV POLYTECHNIC INSTITUTE - KPI

Largest technical university of Ukraine
36,000 Students, 10,000 Professors & Scientists
10 Educational-Research Institutes
19 Faculties, 13 R&D Institutes
KPI trains 25% of all programmers of Ukraine

Some Famous KPI Alumni:

- **Igor Sikorsky** – Designed world's first airliner, first mass-produced helicopter.
- **Sergei Korolev** – The Father of Space, sent up the first Sputnik and first astronaut – Gagarin.
- **Arkhip Lyulka** – Premier designer of jet engines.
- **Vladimir Chelomei** – Mechanics scientist and rocket engineer.
- **Sergey Lebedev** – First universal programmable computer in Continental Europe, 3rd in the world.
Science Park “Kyiv Polytechnic” promotes commercialization of high-tech developments from KPI and elsewhere.

- new technology
- existing technology

Contact: spark@spark.kpi.ua  +38 (044) 406-84-39
A few Great Ukrainians you may not have heard of...
Ilya Ilyich Mechnikov

- Born in Kharkiv 1845
- Biologist and pathologist and a founder of comparative pathology and evolutionary embryology.
- He received the Nobel Prize in Medicine in 1908 for Phagocytosis.
- Phagocytosis in the immune system is a major mechanism to remove pathogens and cell debris. Bacteria, dead tissue cells, and small mineral particles are all examples of objects that may be phagocytosed.
- Inspired Japanese scientist Minoru Shirota to investigate causal relationship between bacteria and good intestinal health, which led to the study of pro-biotics.
Waldemar Haffkine – THE MAN WHO KILLED THE PLAGUE

- Born in 1860 in Berdyansk, Ukraine
- Renowned developer of life-saving vaccines against cholera and the plague
- With the vaccine he created a revolution in the medical science.
- In 1896 in India he helped save tens of thousands of people who were suffering terribly from the cholera epidemic.
- While his discoveries were not recognized in his native country, people in foreign countries are to this day grateful for his achievements.
- In 1925, his Mumbai laboratory in India became the Haffkine Institute, which still operates today and produces a million doses of vaccines and sera annually.
Two Men from Kirovohrad and Kyiv founded the world’s most renowned basketball league – the NBA - the National Basketball Association in the US

Maurice Podoloff was born in Kirovohrad

- He was president of the American Hockey League, and from 1946 to 1963 he was president of the NBA

Eddie Gottlieb was born in Kyiv,

- Managed the Philadelphia Warriors championship basketball team
Andriy Kurkov – Best-Selling Ukrainian Author in 65 Countries

- The unprecedented success this modern Ukrainian writer has reached in countries like
  - Switzerland, Germany,
  - Austria, France,
  - Britain, South Korea,
  - Israel, Tunisia,
  - United Arabic Emirates.

- “Travelling and meeting with people helps me better understand my readers. By the questions they ask, I am able to find out what they like, what they don’t, and what they identify with.”

- “I worked 18 years to reach this goal, and sent out close to 1000 drafts to publishers all over the world.
  - What I got in return was 600 refusals.
  - 40 American publishers refused my work.”

- A London publisher said, ‘Dear Mr. Kurkov, we publish only quality literature. Good luck elsewhere.’

- Luckily there was a more favorable answer from a Swiss company in 1999. The rest is history...
Nick Holonyak invented the first red LED in 1962 at GE

- Born in 1928 in Illinois of Ukrainian parents.
- 1960 – World’s first visible semiconductor laser
- 1962 – World’s first red LED at GE.
- Professor at University of Illinois-Urbana.
Igor Sikorsky

- 1889 – Born in Kyiv, Ukraine.
- 1907 – Kyiv Polytechnic Institute
- 1913 – World's first 4-engine fixed-wing aircraft.
- 1931 – Designed, with Charles Lindbergh, world's first 40-passenger trans-Atlantic airliner.
- 1940 – First mass-produced helicopter.
- Leading US helicopter manufacturer, such as the Black Hawk and Seahawk.
Sergei Korolev – The Father of Space

- 1907 – Born in Zhytomyr, Ukraine
- 1925 – Kyiv Polytechnic Institute
- Lead Soviet rocket engineer and spacecraft designer.
- 1957 – Sent up the first Sputnik.
Ukrainian Artists at the Forefront of Modern Art

- Alexander Archipenko,
- Mykhailo Boichuk,
- Sonia Delaunay,
- Sophia Lewitska,
- Vladimir Baranoff-Rossiné,
- Hannah Orloff,
- Alexis Hryshchenko,
- Mykhailo Andriienko,
- Vasyl Khmeliuk
Alexander Archipenko

• 1887-1964, Born in Kyiv, Ukraine
• Worked in Ukraine, Paris (1908) and then US (1923).
• Avant-garde artist and sculptor.
Some Determined Ukrainian Scientists and Engineers

Ivan Pavlovych Pulyui
1845 – 1918
Physicist, inventor, has been championed as an early developer of X-rays usage for medical imaging.

Stepan Prokopovych Tymoshenko
1878 – 1972
Engineering mechanics, elasticity and strength of materials, Timoshenko beam theory.

Evgeny Oscarovich Paton
1870 – 1953
Welding and bridge construction engineer, head of the Institute of Welding, Academy of Science, Ukraine.

Igor Ivanovich Sikorsky
1889 – 1972
A pioneer of aviation in both helicopters, fixed-wing aircraft; designed and flew the world's first multi-engine fixed-wing aircraft and the first airliner.

Sergey Pavlovich Korolyov
1907 – 1966
Rocket designer and engineer who sent up Sputnik in 1957 and Gagarin in 1961. Father of Space.

Oleg Konstantinovich Antonov
1906 – 1984
Aircraft designer, founder of Antonov ASTC, a world-famous aircraft company in Ukraine; built world's largest aircraft.
The Nobel Prize Winners of Ukrainian Origin

Ilya Ilyich Mechnikov
1845 - 1916
The Nobel Prize in Physiology or Medicine (1908)

Selman Abraham Waksman
1888 - 1973
The Nobel Prize in Physiology or Medicine (1952)

Lew Davidovich Landau
1908 - 1968
The Nobel Prize in Physics (1962)

Simon Smith Kuznets
1901 - 1985
The Nobel Memorial Prize in Economic Sciences (1971)

Roald Hoffmann
Born in 1937
The Nobel Prize in Chemistry (1981)

Georges Charpak
1924 - 2010
The Nobel Prize in Physics (1992)
Untapped Ukrainian and CIS R&D

• Want to work with top scientists and engineers in Ukraine and CIS doing research that is marketable?

• Work as a Partner through Science and Technology Center in Ukraine (STCU) on research projects, focusing on those with practical applications.

Ukrainian and CIS scientists and engineers are eager to work with you!!

STCU is uniquely positioned to help Western organizations tap into the unexploited technologies residing in these countries.
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