



Information tool for preservation, access and retrieval of nuclear knowledge in the frame of portal **BeINET**

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Framework **eLab**

Sphere of application: **implementation and harmonization of the electronic document management of accredited testing laboratories in accordance with international ISO/IEC 17025, ISO 9001 and ISO 9004.**

<http://inp.bsu.by/labs/lar/laie.html>

Код	Знак	Номер	Год	Версия	Наименование
101	TU BY	100058367.053	2008		Время сливочный "Сонейка"
102	TU BY	100058367.055	2008		Напитки молочные "Забавка"
103	GOST	29245	1991		Консервы молочные. Методы определения физических и органолептических показателей
104	GOST	29246	1991		Консервы молочные сухие. Методы определения влаги
105	GOST	29247	1991		Консервы молочные. Методы определения жира
106	GOST	29248	1991		Консервы молочные. Йодометрический метод определения сахаров
107	GOST	30305.4	1995		Продукты молочные сухие. Методика выполнения измерений индекса растворимости
108	GOST	30305.3	1995		Консервы молочные стуженные и продукты молочные сухие. Титриметрические методики выполнения измерений кислотности
109	GOST	3627	1981		Молочные продукты. Методы определения хлористого натрия
110	СТБ ГОСТ Р	51471	2008		Жир молочный. Метод обнаружения растительных жиров
111	GOST	30347	1997		Газожидкостной хроматографией стерильных
112	GOST	30519	1997		Молоко и молочные продукты. Методы определения Staphylococcus aureus
113	GOST	10444.12	1988		Продукты пищевые. Метод определения дрожжей и плесневых грибов
114	GOST P	51921	2002		Продукты пищевые. Методы выявления и определения бактерий Listeria monocytogenes
115	GOST	30711	2001		Продукты пищевые. Методы выявления и определения содержания афлатоксинов В1 и М1
116	GOST	23452	1979		Молоко и молочные продукты. Методы определения остаточных количеств хлорорганических пестицидов
117	GOST P	51600	2010		Молоко и молочные продукты. Микробиологические методы определения наличия антибиотиков
118	МЭК	2.6.1.1194	2003		Равновесный контроль. Строения-90 и серии-137. Пищевые продукты. Отбор проб, анализ и гигиеническая оценка
119	GOST	26930	1986		Сырье и продукты пищевые. Метод определения мышьяка
120	GOST	26927	1986		Сырье и продукты пищевые. Методы определения ртути
121	GOST	26928	1986		Продукты пищевые. Метод определения железа
122	ТН ВЭД ТС	299	2010		Единые санитарно-эпидемиологические и гигиенические требования к товарам, подлежащим санитарно-эпидемиологическому надзору

Over 5 years of uninterrupted operation of the system, more than **50,000** analyzes were executed with the help of **eLab-Fuel** in the 202 Chemmotology Center of the Fuel for quality monitoring and management of specimens, measurements and passports of fuels and lubricants of the Belarusian Armed Forces



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What is eLab?

System eLab has a client-server architecture based on free software:

- Debian GNU/Linux,
- Web-server Apache,
- the Firebird database server,
- PHP application server.

The system runs under Windows and Linux. The work is carried out through the Internet in multiplayer mode, with the division of access rights by way of widespread browsers: Internet Explorer, Mozilla Firefox, Google Chrome, Opera etc.

Код	Обозначение	Дата	Примечания	Секретность
1	топливо ТСМ	ТУ ВУ 300220696.045-2009		несекретно
2	топливо ТСМ	ТУ ВУ 300220696.036		несекретно
3	АС-1	ТУ ВУ 100017108.003-2010		несекретно
4	растворитель для тех.целей	ТУ ВУ 300220696.042-2007		несекретно
5	топливо ТС дистиллятное	ТУ ВУ 300220961.003-2010		несекретно
6	топливо ТС дистиллятное	ТУ ВУ 300220961.003-2010 изм.1		несекретно
7	присадка НКГ	ТУ ВУ 390401182.020-2009		несекретно
8	растворитель для пром.целей (опыт.образцы)	ТУ ВУ 190690497.001-2011 опыт.образцы		несекретно
9	бензин авиационный	ГОСТ 1012-72		несекретно
10	ветилированный бензин	ГОСТ 31077-2002		несекретно
11	топливо дизельное	СТБ 1658-2006		несекретно
12	топливо дизельное	ТУ 38.401-58-296-2005		несекретно
13	топливо для реактивных двигателей	ГОСТ 10227-86		несекретно
14	бензин Евро	ТУ ВУ 400091131.008-2010		несекретно
15	бензин автомобильный	ТУ ВУ 400091131.002-2009		несекретно
16	мазут М100	ГОСТ 10585-99		несекретно
17	насло авиационное	ГОСТ 21743-76 изм.7		несекретно
18	нефтепродукты отработанные	ГОСТ 21046-86		несекретно
19	насло синтетическое	ТУ 38.101295-85 изм.1-4		несекретно
20	топливо эмульсионное	ТУ ВУ 391051623.003-2009		несекретно
21	мазут эмульсионный	ТУ ВУ 69060821.001-2010	ЧПУП "ГлобалТрейдинг"	несекретно
22	мазут модифицированный	ТУ ВУ 690639214.001-2010		несекретно
23	топливо мазутное	ТУ ВУ 190276418.001-2010		несекретно
24	44У	ТУ ВУ 300220961.001-2008		несекретно
25	мазут эмульсионный	ТУ ВУ 391051623.001-2009	ООО "Нефтехимтрансвао"	несекретно
26	жидкость охл.низкозамерзкая	ГОСТ 159-52		несекретно
27	этиленгликоль конц.	ГОСТ 4367-52		несекретно
28	смазка автомобильная	ГОСТ 9432-60		несекретно
29	смазка ЦИАТИМ-201	ГОСТ 6267-74		несекретно
30	смазка Солидол Х	ГОСТ 1033-79		несекретно
31	смазка Литол	ГОСТ 21150-87		несекретно
32	насло моторное для автотракторных дизелей	ГОСТ 6881-78		несекретно
33	растворитель для пром.целей	ТУ ВУ 190690497.001-2011		несекретно



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https://en.wikipedia.org/wiki/Free_software

Free software or libre software **is computer software distributed under terms that allow users to run the software for any purpose as well as to study, change, and distribute it and any adapted versions. Free software is a matter of liberty, not price.**

Russian variant of Linux:

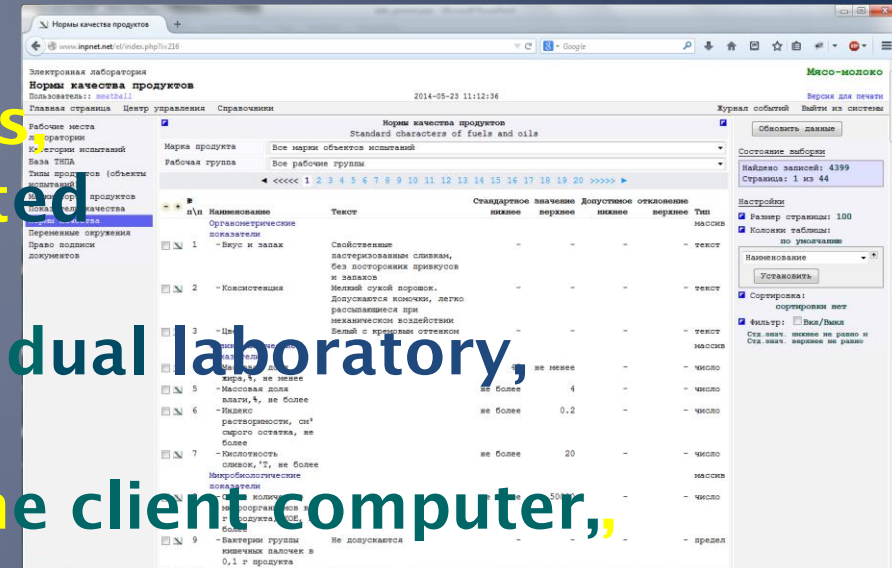




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Features of eLab :

- software eLab is open to modifications by users
- includes a standard set of log forms of accredited laboratory
- is easily adjusted to the specifics of each individual laboratory,
- runs on a secure server;
- it is not required to install some software on the client computer,
- it is sufficient of a standard browser,
- can operate both on a local intranet, or the global Internet,
- allows in the frame of a single installed copy of the product at the same time maintain the workflow of many laboratories and organizations, with different profiles.



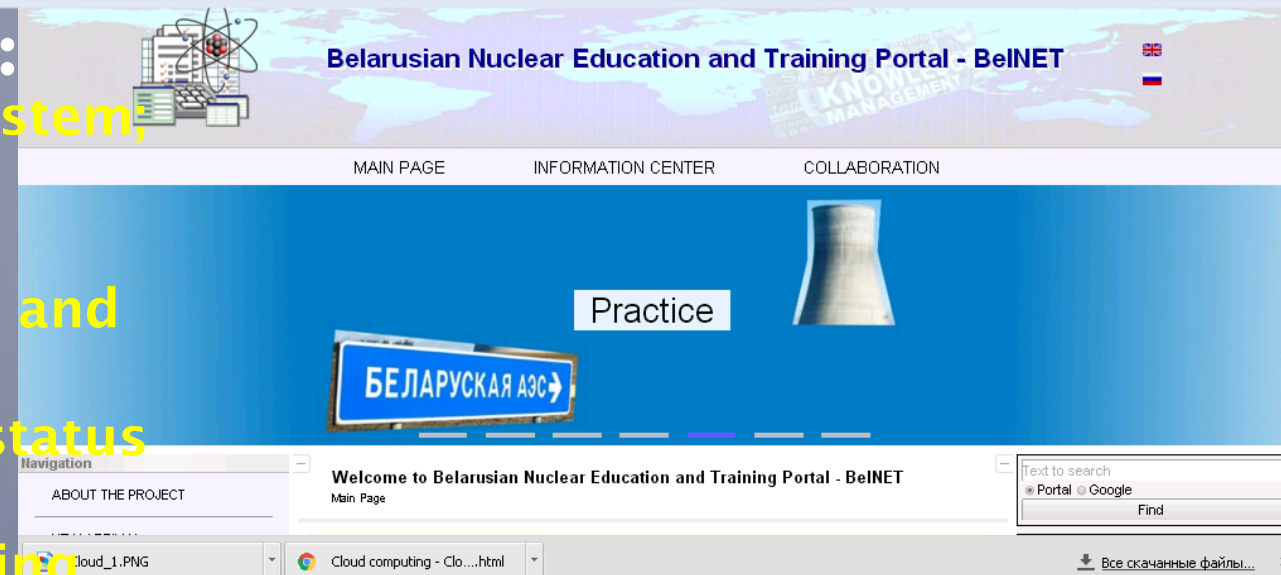
The system is easily configured for the needs of the project



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Technical advantages of eLab:

- ability to extend the functionality of the system;
- customizable user interface and the preservation of its current state;
- fast convenient system of sorting, filtering and retrieval of data;
- automatic update and display the current status of the sampling,
- simple insertion mechanism, editing, deleting records, editing multiple records simultaneously.
- validation of input data, the abolition of common mistakes;
- exclusion of input data duplication;
- automatic generation of output documents for reports in prescribed form;
- possibility for user to make changes to the templates of the final documents;
- exclusion of the human factor and related errors in records and output documents.





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Competition with analogues of eLab:

- Compliance with requirements of free software, working under Windows and Linux.
- automate laboratory processes;
- significantly reduce the time to:
 - ✓ registration of samples and test results;
 - ✓ extract certificates of product quality;
 - ✓ search the appropriate entries in the laboratory journal;
- eliminate operator errors when creating documents;
- generate summary laboratory reports;
- increase lab productivity, quality of work and quality of monitoring of the works.





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Steps in eLab development:

- 2010 – eLab is implemented in the educational process of Belarusian State University, Belarusian State Technological University, Belarusian National Technical University, in the Chemical-toxicological laboratory of the Minsk Drug Treatment Clinic.
- 2012 – Commissioning of eLab-Fuel in 202 Chemmotology Center of the Fuel for quality monitoring and management of specimens, measurements and passports of fuels and lubricants of the Belarusian Armed Forces.
- 2013 – Commissioning of eLab-Fuel in Belarusian branch of company GazPromNeft.
- 2014 – Software eLab-Atom for control of ionizing radiation sources
- 2015 – Developed CMS eLab-Science
- 2015 – Portal of nuclear knowledge BeINET <https://belnet.bsu.by>
- 2017 – Portal of the project of Programme Horizon2020 Coexan <https://coexan.bsu.by>
- 2018 – Software eLab-Control for Intellectual information system of the Gosatomnadzor employee to ensure control (supervision) in the field of nuclear and radiation safety





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Modification of eLab:

eLab for electronic document management in the laboratory

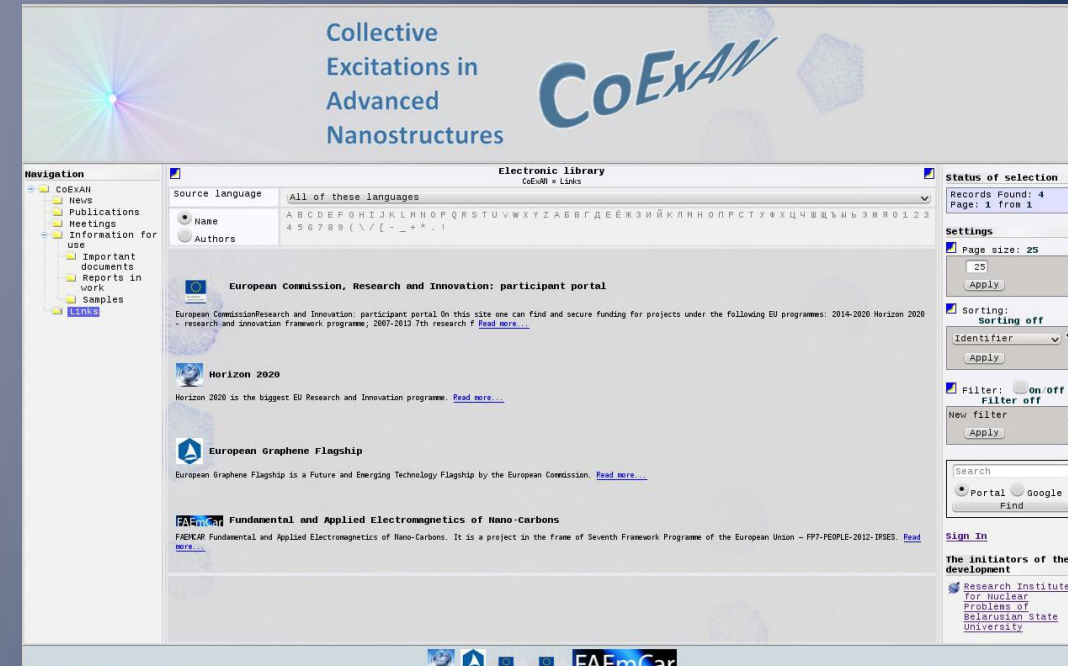
eLab-Fuel for quality monitoring and management of specimens, measurements and passports of fuels and lubricants

eLab-M - for the meat and dairy industry

eLab-Atom for control of ionizing radiation sources

eLab-Control for control (supervision) in the field of nuclear and radiation safety

eLab-Science is an original content management system allowing cloud Internet technologies with sufficient level of security with the possibility of organizing "cloud" Internet platforms for joint work on the project





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Intellectual information system of the Gosatomnadzor employee to ensure control (supervision) in the field of nuclear and radiation safety:

1.1. Планирование, организация, проведение и результаты контрольной (надзорной) деятельности на всех этапах жизненного цикла АЭС - INP/BSU Electronic Laboratory

Система (elabSystem)
Интеллектуальная информационная система сотрудника Госатомнадзора для обеспечения контроля (надзора) в области ядерной и радиационной безопасности «0. Деятельность сотрудника Госатомнадзора. Модуль № 1.1.1. Контроль (надзор) за обеспечением безопасности при сооружении и вводе в эксплуатацию Белорусской АЭС, включая контроль (надзор) за оборудованием, системами и элементами энергоблоков №1, 2 Белорусской АЭС (старый интерфейс)» 1.1. Планирование, организация, проведение и результаты контрольной (надзорной) деятельности на всех этапах жизненного цикла АЭС

1.1.1.1. Планирование Госатомнадзором осуществления контроля (надзора), включая базу данных аналитических материалов, организационные заседания по сооружению и вводу в эксплуатацию Белорусской АЭС и документы по подготовке и результатам осуществления проверок Госатомнадзором

Код	Код типа	Тип мероприятий по планированию и организации	Наименование документа	Дата начала мероприятия/ Дата поступления документа	Дата окончания мероприятия	Код верхнего уровня	Примечания	Подготовленные документы
1	13	Изменения и дополнения, вносимые в проектную документацию	Протокол № 125					2
2	1	Заседание МК	Протокол рабочей группы №2332			1		2
3	2	Заседание Рабочей группы Госатомнадзора	Дополнительное заседание рабоч. группы			2	Примечание	0
4	10	Уведомление от ВелАЭС	Уведомление о получении и рассмотрении			1		0
5	2	Заседание Рабочей группы Госатомнадзора				3		0

1. Module for safety control (supervision) during the construction and commissioning of the Belarusian NPP

2. Module for monitoring (supervising) the radiation safety of ionizing radiation sources

3. Module for accounting and control of nuclear materials, radioactive waste and spent nuclear material



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← → ↻ <https://belnet.bsu.by/index.php?l=en> 🔍 ☆ ☰

Сервисы Handbook of accelerator Taking a closer look at LI Taking a closer look at LI Fermilab | WDR5 | Fermi Fermilab | WDR5 | Fermi Fermilab | WDR5 | Fermi

Belarusian Nuclear Education and Training Portal - BeINET

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MAIN PAGE INFORMATION CENTER COLLABORATION

Science

Navigation

- ABOUT THE PROJECT
- NEW ARRIVAL
- RECOMMENDED TO READ

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Main Page

To login, please, enter the user name and password, and the characters you see at the picture.
For laboratory work you should register in the system.

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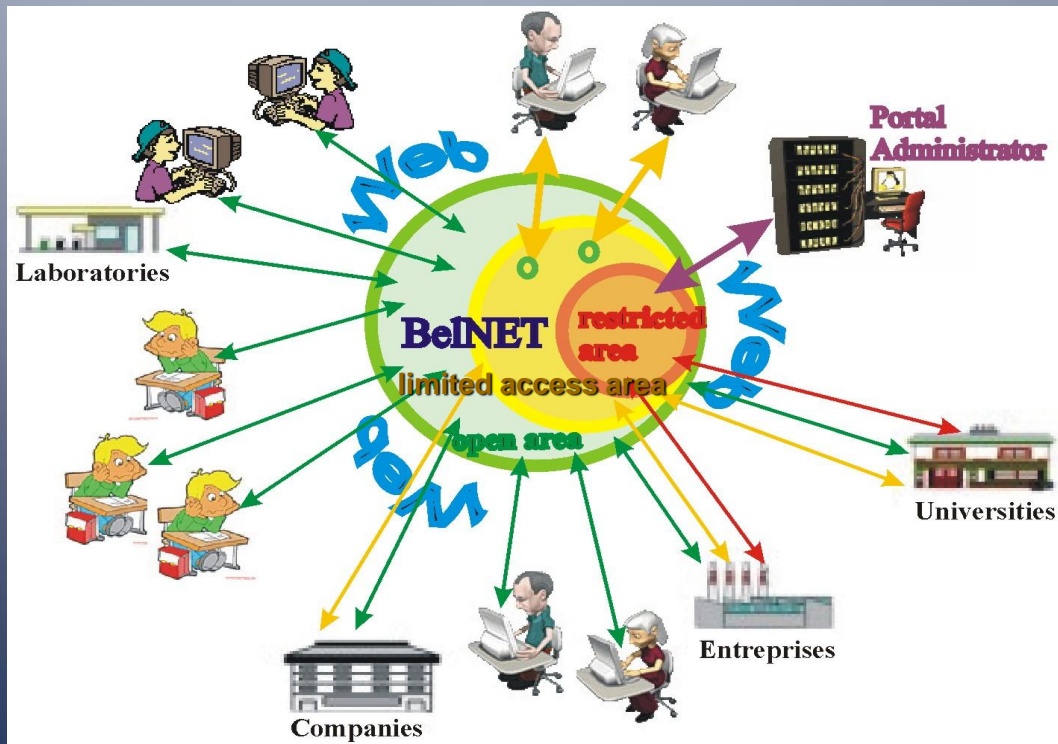
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Initiators of BeINET development



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The BeINET main purpose is popularization of nuclear knowledge in order to attract the most capable young people in this field and create a positive image of nuclear power.



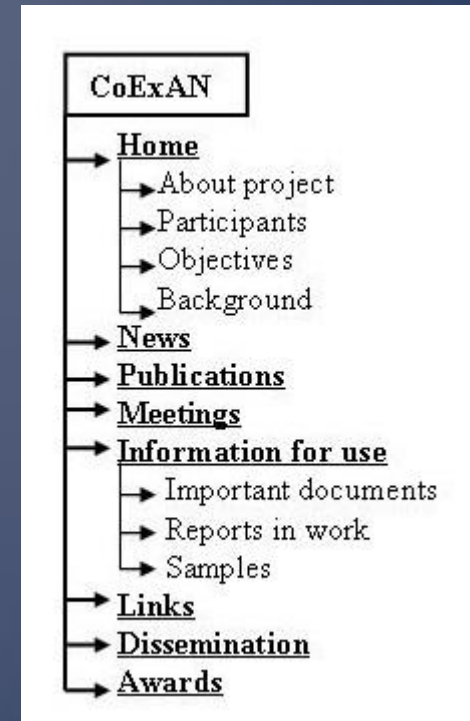
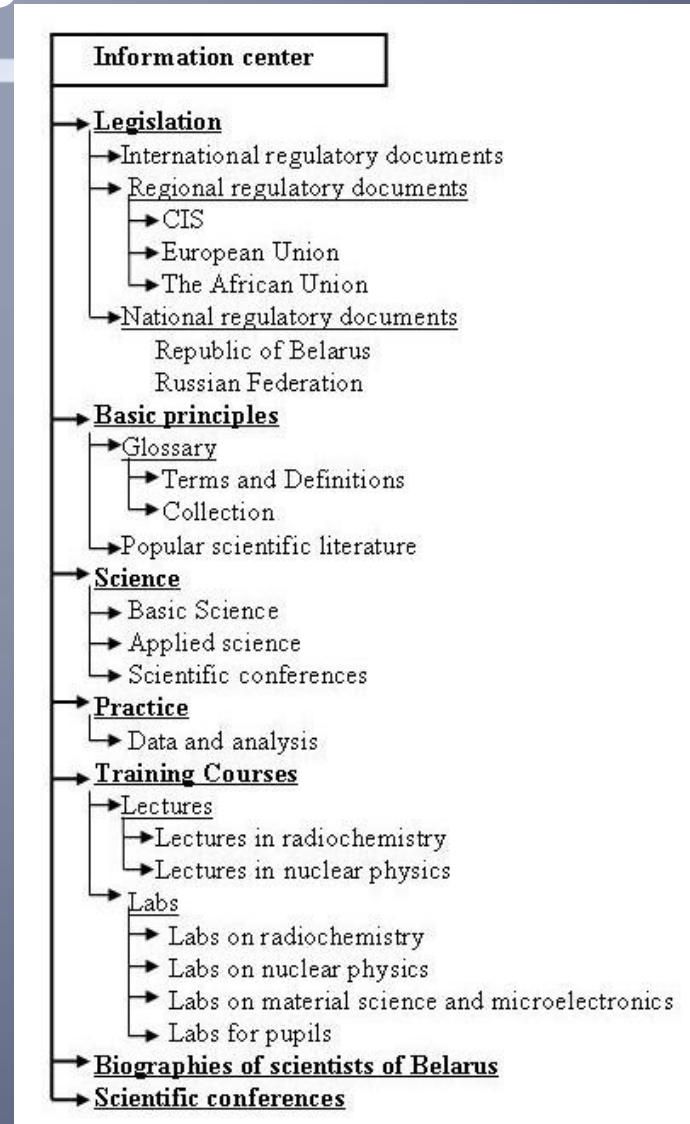
Principles of organization
<https://belnet.bsu.by>

At the moment, the content of the portal contains over **700** original entries



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Taxonomy (the hierarchical structure of the portal) of BeINET (part) and CoExAN





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Editors **providing formation and access to resources within CMS eLab-Science:**

- **portal sections editor**
- **resource type editor**
- **resource editor**
- **systematization of resources**
- **editor of access to files**
- **portal structure editor**
- **resource content editor**
- **editor of test control questions**
- **editor of the answers to the test questions**



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The resource content editor allows to lay out in general access any text resources - not only laboratory works, but also various scientific materials and articles containing various formulas and pictures.

Электронная лаборатория
Содержание ресурсов
Пользователь: Administrator 2018-06-22 19:04:51
Главная страница Центр управления Справочники Журнал событий Выйти из системы

Портал ядерных знаний

Обновить данные

Состояние выборки
Найдено записей: 6
Страница: 1 из 1

Настройки
 Размер страницы: 100
 Колонки таблицы: по умолчанию
 Сортировка: сортировка нет
 Фильтр: Вкл/Выкл фильтра нет

Содержание ресурсов
Resource content

Ресурс Содержимое

92 Лабораторная работа №1 Определение активности источника » X
относительным методом Цель работы: Определить неизвестную активность источника относительным методом. Оценить погрешность измерения. Важной физической характеристикой источника из...

Ресурс 092 Лабораторная работа №1 "Определение активности ис...
Содержимое <div class="lab-work-head">
<figure class="lab-work-head-child">

</figure>
<div class="lab-work-head-child">
Показать предпросмотр

262 Краткие сведения из ядерной физики и ядерной спектрометрии »
Радиоактивность и источники ионизирующего излучения. Радиоактивность – это процесс самопроизвольного преобразования ядра с испусканием одной или большего числа частиц. Известн...

93 Лабораторная работа №2 Поглощение электронов в алюминии Цель »
работы: Изучить процессы взаимодействия электронов с веществом. Определить толщину слоя половинного ослабления в



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Instrument "Preview"

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Инициаторы развития BeINET

- [Research Institute for Nuclear Problems of Belarusian State University](#)
- [Physics Department of Belarusian State University](#)
- [Chemical Department of Belarusian State University](#)
- [State Scientific Institution "THE JOINT INSTITUTE FOR POWER AND NUCLEAR RESEARCH - SOSNY"](#)

Лабораторная работа №1

Определение активности источника



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Информационный ц BeINET

<https://belnet.bsu.by/elib/?i=131&>

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Electronic library
Main Page » New arrival » Nuclear education and training

Source language: All specified Languages

● Title
● Authors

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

2018-08-11
The XIV-th International School-Conference "The Actual Problems of Microworld Physics", August 12-24, 2018

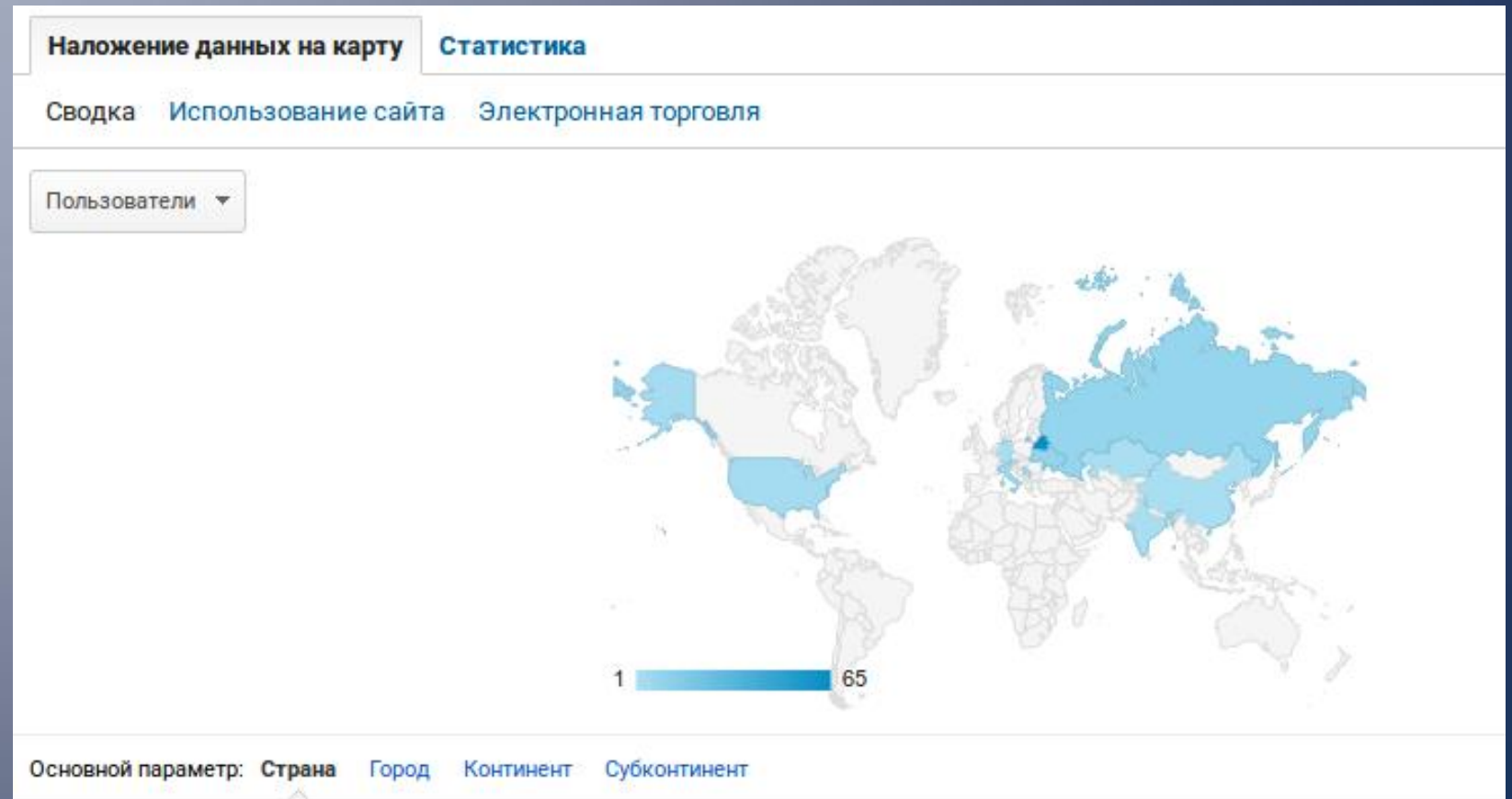
The XIV-th International School-Conference "The Actual

Mobile version



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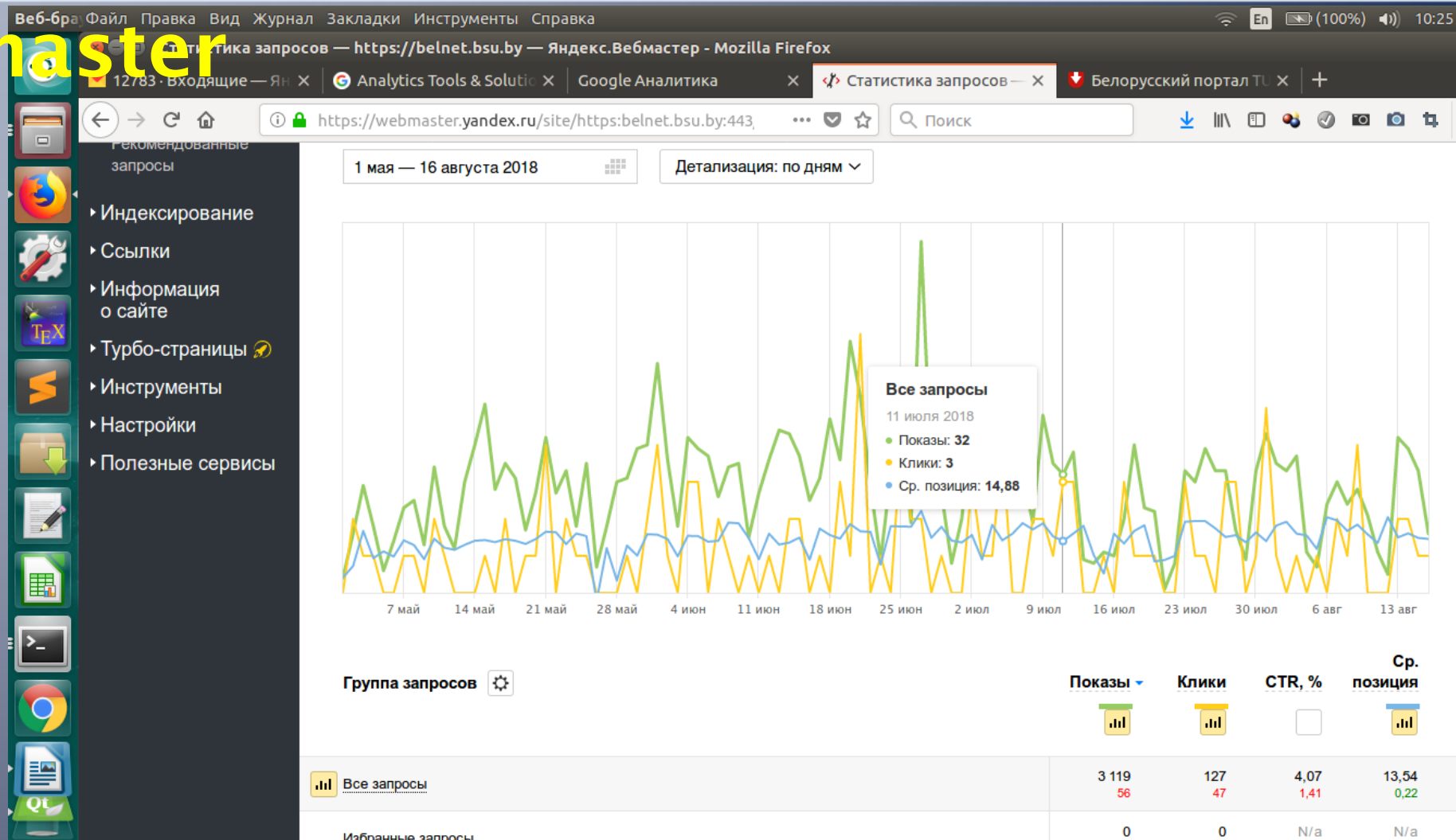
Analytics.Google.com





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Training Courses

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Initiators of BeINET development
Research Institute for Nuclear Problems of Belarusian State University
Physics Department of Belarusian State University
Chemical Department of Belarusian State University



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New training materials for **BeINET**:

Methodical materials to the General laboratory practice "Physics of the nuclei"
(12 labs, 180 pages, 86 test questions)
by Department of Nuclear Physics of BSU





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Our plans and propositions:

1. Adapted on-line course "Safety of nuclear and radiation technologies" for various categories of users of the electronic portal of nuclear knowledge BeINET (2019-2020)

It includes key concepts on the safety of nuclear and radiation technologies, including necessary knowledge from the following fields: mathematics, physics, chemistry, biology, the fundamentals of nuclear and radiation safety, nuclear technologies, management and culture of nuclear knowledge, information technologies.

At present, there is no analogue of the proposed course in the world and in Belarus, in particular.



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Los Alamos NATIONAL LABORATORY

lanl.arXiv.org

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Subject search and browse: **Physics** Search Form interface

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12 Jan 2015: A project update, including a brief summary of activities in 2014, has been posted
1 Jan 2015: New members join arXiv Scientific Advisory Board
See cumulative "What's New" pages. Read robots beware before attempting any automated download

Physics

- Astrophysics (**astro-ph** new, recent, find)
includes: Astrophysics of Galaxies; Cosmology and Nongalactic Astrophysics; Earth and Planetary Astrophysics; High Energy Astrophysical Phenomena; Instrumentation and Methods for Astrophysics; Solar and Stellar Astrophysics
- Condensed Matter (**cond-mat** new, recent, find)
includes: Disordered Systems and Neural Networks; Materials Science; Mesoscale and Nanoscale Physics; Other Condensed Matter; Quantum Gases; Soft Condensed Matter; Statistical Mechanics; Strongly Correlated Electrons; Superconductivity
- General Relativity and Quantum Cosmology (**gr-qc** new, recent, find)
- High Energy Physics - Experiment (**hep-ex** new, recent, find)
- High Energy Physics - Lattice (**hep-lat** new, recent, find)
- High Energy Physics - Phenomenology (**hep-ph** new, recent, find)
- High Energy Physics - Theory (**hep-th** new, recent, find)
- Mathematical Physics (**math-ph** new, recent, find)
- Nonlinear Sciences (**nlin** new, recent, find)
includes: Adaptation and Self-Organizing Systems; Cellular Automata and Lattice Gases; Chaotic Dynamics; Exactly Solvable and Integrable Systems; Pattern Formation and Solitons
- Nuclear Experiment (**nucl-ex** new, recent, find)
- Nuclear Theory (**nucl-th** new, recent, find)

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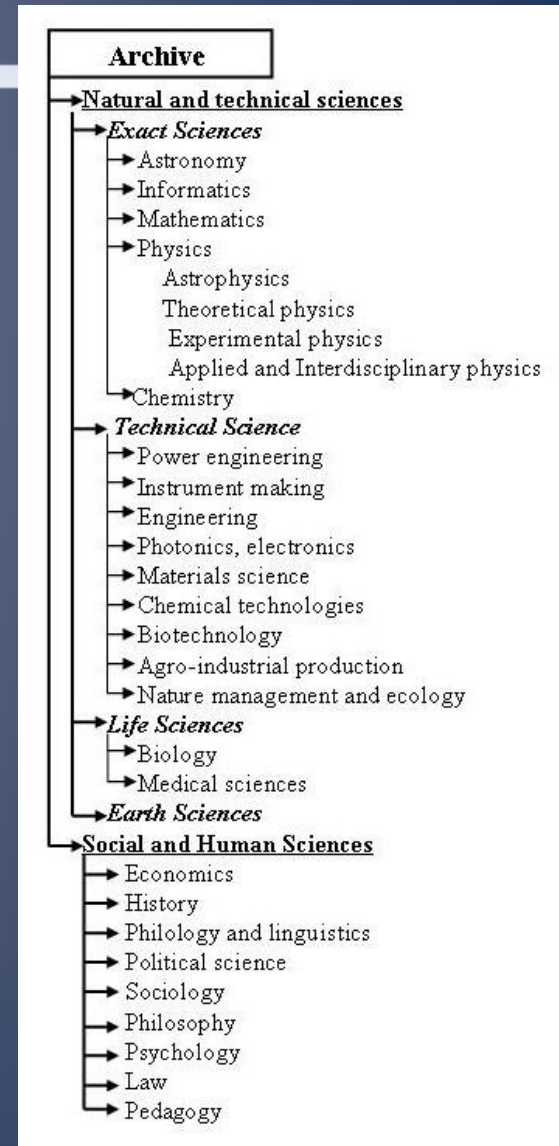
Existing scientific archives



Information tool for preservation, access and retrieval of nuclear knowledge in the frame of portal **BeINET**

Belarusian electronic scientific archive on the basis of eLab-Science

- Archive of publications of the natural and humanitarian profile.
- The site for the operational placement of scientific articles, including preprints, pre-publications, with strict copyright control and anti-plagiarism.
- Languages of publications - English, Russian, Belarusian, etc. with a mandatory summary in English.
- The possibility of publishing not only articles, but also presentations, video materials, etc.
- Ability to create full-fledged Internet pages on scientific topics with formulas, graphics, drawings, video.
- The purpose of the archive is to promote the dissemination and dissemination of scientific knowledge.

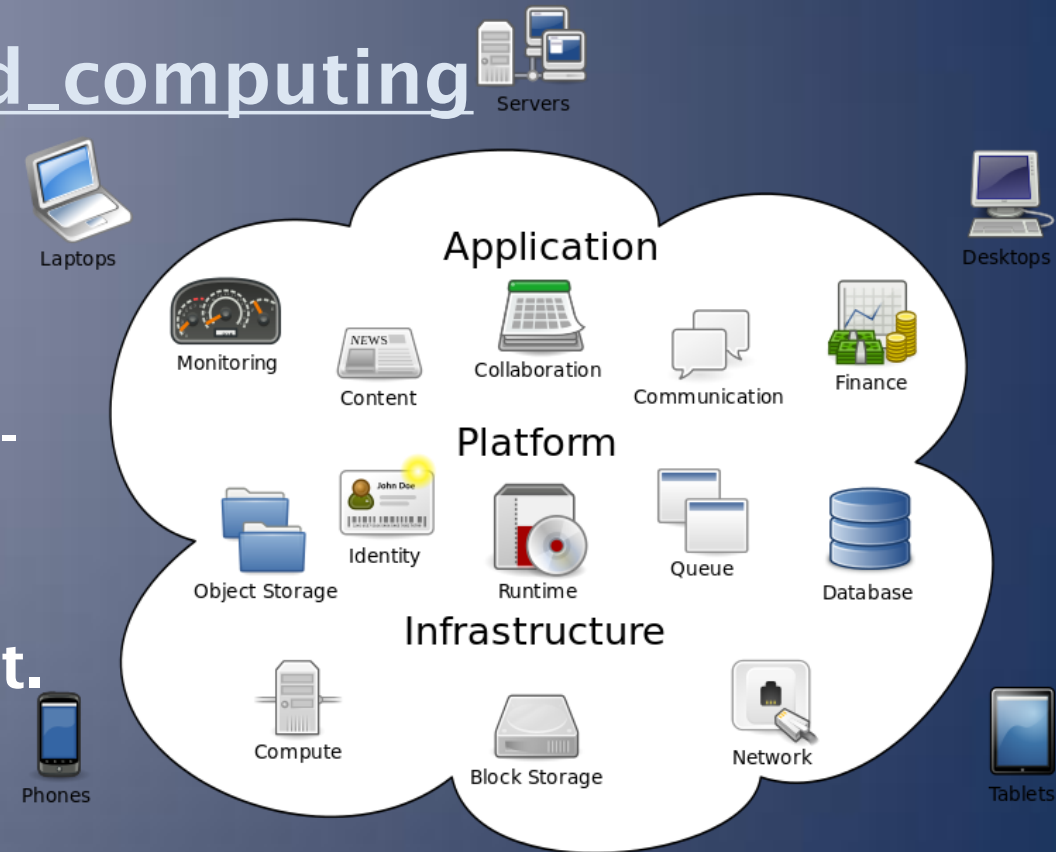




Information tool for preservation, access and retrieval of nuclear knowledge in the frame of portal **BeINET**

https://en.wikipedia.org/wiki/Cloud_computing

Cloud computing is an information technology (IT) paradigm that enables ubiquitous access to shared pools of configurable system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the Internet. Cloud computing relies on sharing of resources to achieve coherence and economies of scale, similar to a public utility.

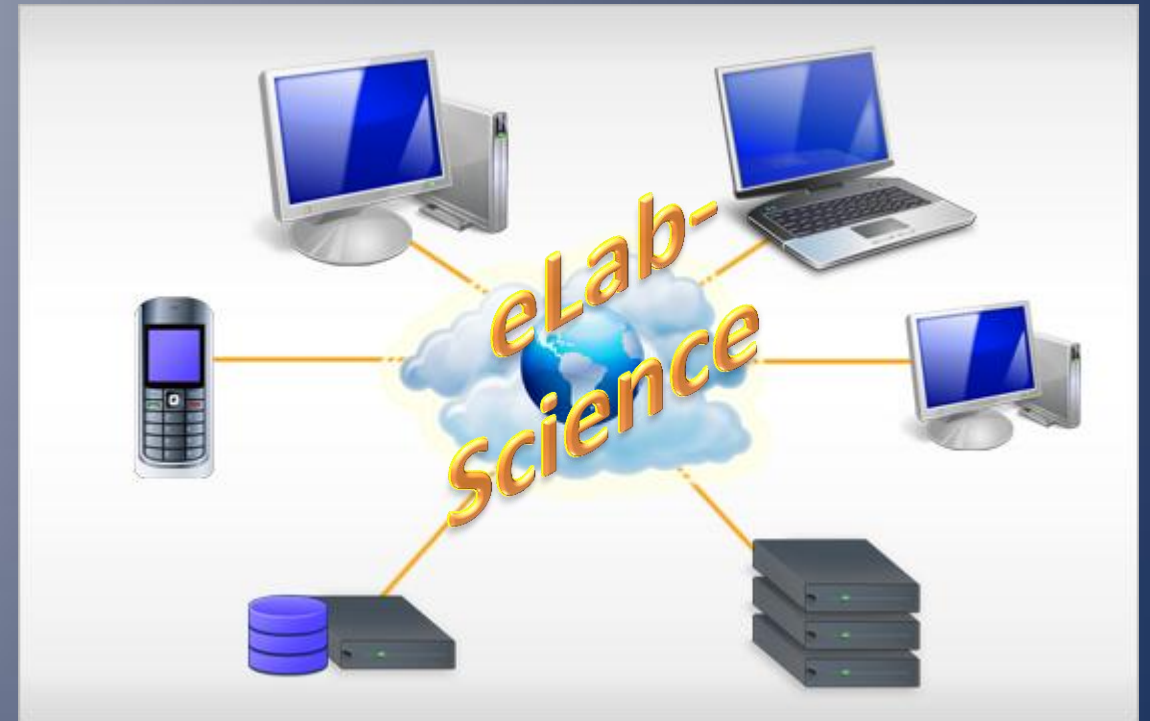
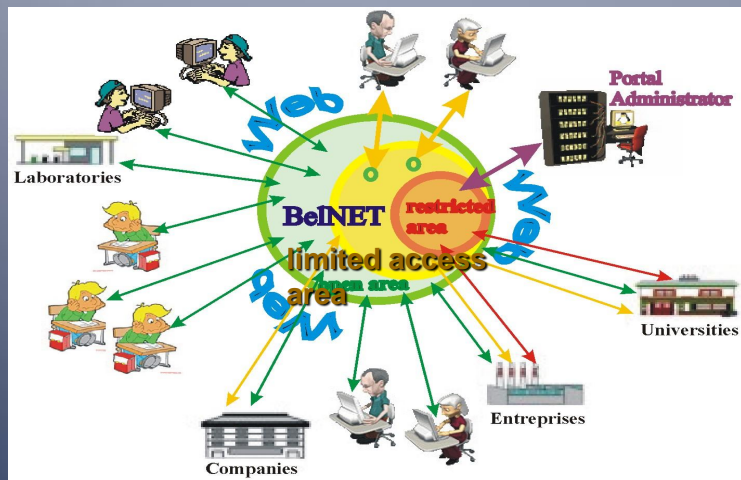


Cloud computing



Information tool for preservation, access and retrieval of nuclear knowledge in the frame of portal **BeINET**

Electronic scientific resources (clouds) on the basis of eLab-Science





THANK YOU FOR ATTENTION!

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