



HOSTING **EXTREME LIGHT
INFRASTRUCTURE
IN ROMANIA**

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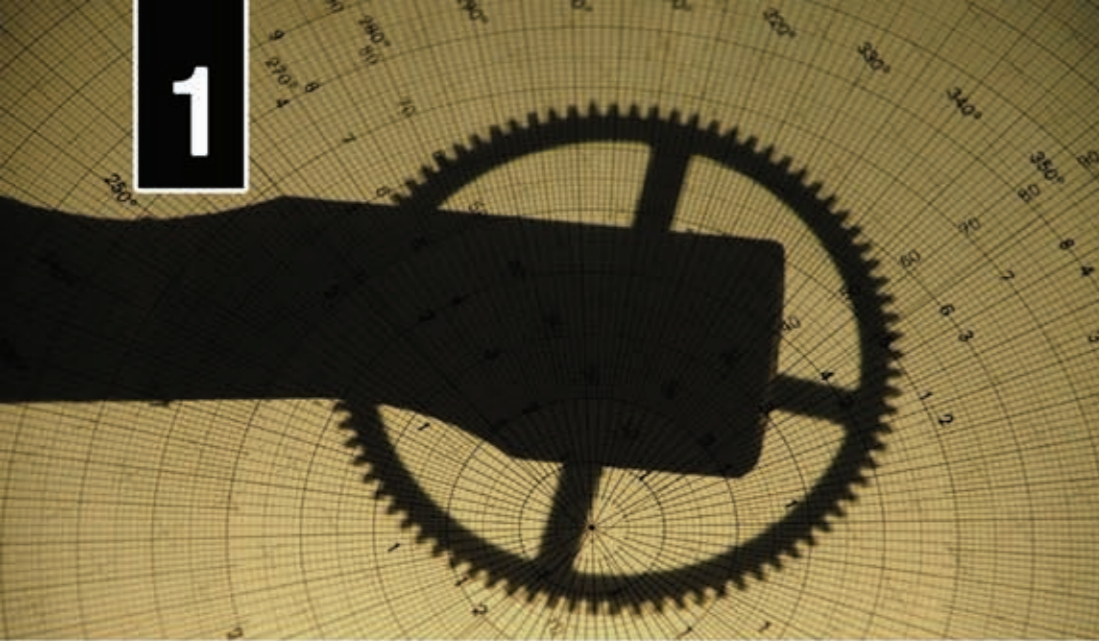
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Hosting ELI in Romania represents the best option

because...

...Romania offers:

- a very high level of competence in the field of Physics
- a research community of world class reputation
- modern R&D facilities
- a strong political commitment to invest in science.

...it represents a convergence point of two major axes of EU interest in South-Eastern Europe by:

- achieving socio-economic cohesion across EU by developing science and technology capacities in new member states areas
- enlarging the research community inside EU borders by strengthening neighborhood policies regarding non-EU residents research involvement and mobility

26'00"E
44'12"N

The physics centre of Romania

is at Magurele



...an excellent place for the construction and future expansion of ELI, as it will provide the highest scientific performance with important advantages including minimization of costs

...a pole of Physics, with the largest concentration of research, educational and technological facilities in all major fields of Physics and related domains in Romania and the entire South-Eastern Europe

...the host of five national R&D institutes (nuclear, atomic and particle physics; laser, plasma and space sciences; physics of materials; seismology; optoelectronics), the Faculty of Physics of the Bucharest University and two engineering companies (optoelectronics and nuclear facilities)

... the ideal combination between research and specialized university education, thereby guaranteeing a permanent flow of young researchers into the field

...with over 1000 researchers and 8 research infrastructures of national interest, has the highest scientific visibility in Romania and comparable to other European countries

Romania has a great tradition

in the scientific research
in various domains of Physics

- the fourth country in the world to build and operate a laser (1962)
- the first eastern country outside Soviet Union to operate a nuclear reactor, a cyclotron and a betatron (1956)
- the only country in South-Eastern Europe to build a factory producing highest quality heavy water and becoming now the most important heavy water producer in the world
- a country with an impressive pool of young scientists, second to Poland in Eastern Europe as concerns the largest number of young graduate scientist per year.

Romania continued developing important facilities at Magurele: a Tandem Accelerator (1974), the Radioisotope Production Center (1974), the Nuclear Waste Processing Center (1974) and IRASM –the Multipurpose Gamma Irradiator (2000) and has a most active evolution in Physics.

ANGHEL LONGEST BRIDGE OVER DANUBE 1890-1895
SALIGNY ALEXANDRU MULTI-STAGE ROCKET 1529
GEORGE CIURCU REACTION ENGINE 1886
EMIL DRAGOMIR RODRIG GOLIESCU FIRST AIRPLANE WITH A FULL CYLINDRICAL FUSELAGE 1909
PALADE NOBEL PRIZE 1974
NICOLAE DORIN PRUNARIU FIRST ROMANIAN THAT MADE A SPACE FLIGHT
PAULESCU HURMUZESCU
HERMANN HENRI COANDA FIRST JET AIRCRAFT IN THE WORLD
OBERTH THE FATHER OF SPACE FLIGHT
TRAIAN VUIA AUREL VLAICU
PETRACHEANASTASE EARLY AVIATOR 1910
POENARU DRAGOMIR GEORGE CONSTANTINESCU THEORY OF SONICS
1827 NICOLAE TECLU BURNER
1930 EUGEN NICOLAE VASILESCU-KARPEN FIRST TO APPLY AERODYNAMICS TO AUTOMOBILES
ORBAN THEODOR V. IONESCU GREAT TURKISH BOMBARD

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National R&D Institute for Laser, Plasma and Radiation Physics (INELPR, Magurele). R&D personnel: 337 (222 researchers, 19 PhD supervisors, 134 PhD, 70 PhD students)

National R&D Institute for Optoelectronics (INOE, Magurele). R&D personnel: 124 (97 researchers, 1 PhD supervisor, 32 PhD, 33 PhD students)

National R&D Institute for Physics (IFIN-HH, Magurele). R&D personnel: 215 (174 researchers, 14 PhD supervisors, 89 PhD, 59 PhD students)

University of Bucharest Faculty of Applied Sciences (FSA-JPB, Bucharest). Academic staff: 205 (173 PhD, 51 PhD students)

University Politehnica of Bucharest (FF-UB, Magurele). Academic staff: 135 (49 full Professors)

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Steps for taking further the Physics in Romania

Step one...

...being permanently involved in important international Physics projects...

- founding member of JINR - The Joint Institute of Nuclear Research (Dubna, Russia – 1956) and FAIR - Facility for Antiproton and Ion Research (2006)
- a member of CERN – The European Center of Nuclear Research (2008)

and institutions...

- founding member of the European Physical Society and the Balkan Physical Union, with Professor Ioan Ursu being President of both institutions (1978-1980 and 1988-1990, respectively).

Step two...

...a large investment effort in the public research infrastructure

Outstanding investments, estimated to be of a high regional impact, the following investment projects can be considered to definitely contribute to a synergic development of the ELI scientific programme:

- "The integrated Centre for Advanced Laser Technologies" operating a 1 Petawatt laser (20 M Euro) - National R&D Institute for Laser, Plasma and Radiation Physics
- "Infrastructure Development for Frontier Research in Nuclear Physics and Related Fields" (15 M Euro) - National R&D Institute for Physics and Nuclear Engineering
- "The Euro-Regional Centre for the Study of Advanced Materials, Surfaces and Interfaces" (14 M Euro) National R&D Institute for Materials Physics.

Step three...

... a strong commitment to invest in science in the future!

The government strongly supports the construction of ELI at Magurele as part of its overall development plans for science and technology. In 2007 the Romanian Government decided to spend over 5,6 billion Euros for Science and Technology from 2007 to 2013, so...

ELI team will benefit from the advantage of a substantial, constant Government founding during all the phases of its development.

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Magurele offers ELI important advantages

- **Radioprotection** - the area is already inside a forest ring of 500m radius; **Power supply** - the necessary utilities are connected inside the area and have sufficient capacities to meet the requirements of ELI operation
- **Safety** - there is a security system built in accordance to the standards required by the nuclear research facility
- **Environmental protection** - the environmental management system has already been implemented to the highest standards because of the nuclear research activities carried at the site
- **Dedicated space** for ELI administration in the Administrative Building of the Institute of Atomic Physics
- **Connectivity** – IT high speed connection to GEANT (FO at 10 Gbps); **National Physics Library** - in a new location, with an impressive number of periodicals and books
- **Cost-effectiveness** as the land for ELI is free of charge and the costs of both labor and materials are lower than the EU zone average
- **Leisure facilities:** park, swimming pool, tennis and football fields

Building ELI in Romania would mean

- establishing the first major advanced research center in South East Europe
- creating an advanced technology pole in Eastern Europe, a catalyst for industry and the private sector
- narrowing the technological gap between Eastern and Western EU Member States

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Magurele belongs to the Bucharest Metropolitan area

...and enjoys all its facilities: social, educational, cultural, entertainment, etc. and infrastructure:

- Two international **airports** within 30 and 20 km distance from Magurele; scheduled construction by the year 2015 of a third international airport at only 15 km from Măgurele, of a significantly larger capacity;

- The Bucharest first **ring road** at only 1 km distance, currently being extended to two lanes per traffic direction. With the second ring road under construction at 10 km from Magurele, an access in only a few minutes will be ensured to all important highways connecting Bucharest to the most important cities in the country and to Pan-European corridors;

Magurele benefits of a **railroad** connection both for persons and freight transportation, being located on the Bucharest ring railroad, which is scheduled to be fully upgraded and extended by 2015, ensuring thus connections by rail to all airports and underground network.





history, culture and tourism

Romania offers a rich tapestry of tourist attractions and vacation experiences, unique in Central-Eastern Europe: medieval towns in Transylvania, the world-famous Painted Monasteries in Bucovina, traditional villages in Maramures, the magnificent architecture of Bucharest, the romantic Danube Delta, fairy-tale castles, the Black Sea resorts, the majestic Carpathian Mountains, spas and much more.

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Romania has its unique culture,

which is the product of its geography
and of its distinct historical evolution.

Rural tourism focused on folklore and traditions, has become an important alternative recently, and is targeted to promote such sites as Bran and its Dracula's Castle, the Painted churches of Northern Moldavia, the Wooden churches of Maramures, or the Merry Cemetery in Maramures County.



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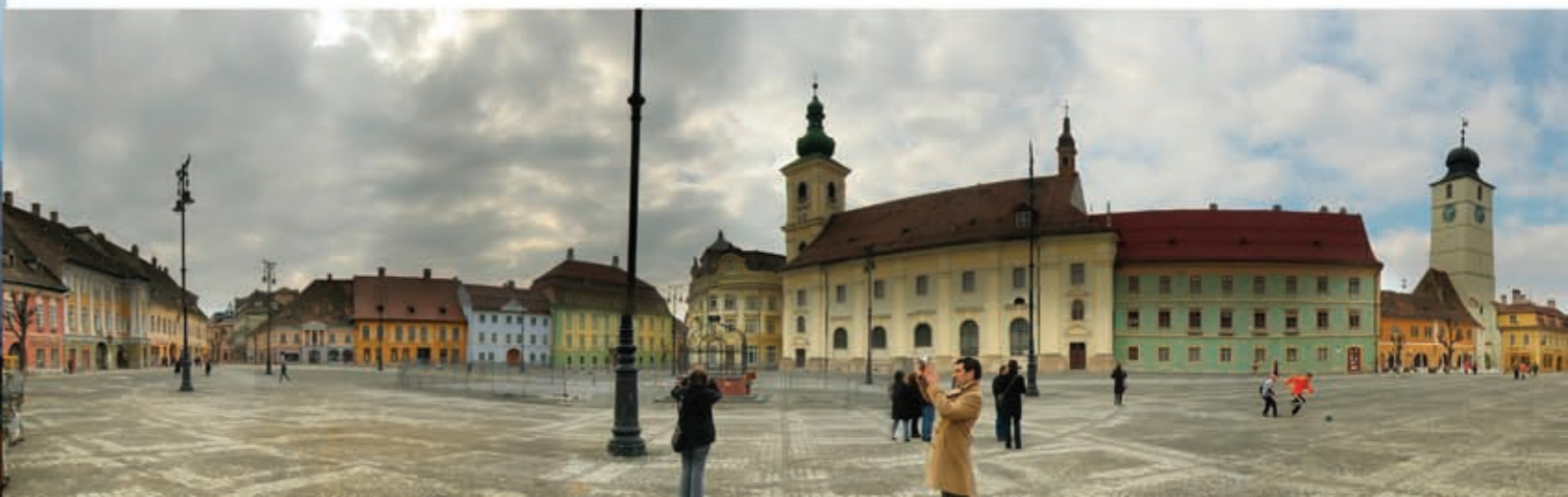


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Medieval Towns

Brasov, Sibiu and Sighisoara are some of Europe's best-preserved medieval towns. They are living, veritable symbols of Transylvania. Visitors can stumble upon unique architectural treasures, small ancient tiny houses that line narrow streets, cobblestoned passageways and covered stone steps as they wander. Tiny shops purvey a range of antiques and fine hand-made products of artisans and artists who have established little communities in the countryside.






The Danube Delta

A UNESCO Natural World Heritage Site

The waters of the Danube, which flow into the Black Sea, form the largest and best preserved of Europe's deltas - The Danube Delta (Delta Dunarii).

The Danube Delta is home to more than 300 migratory and permanent bird species; 160 kinds of fish that include caviar-bearing sturgeon and 800 plant families. This wetlands preserve covers more than 1,678,000 acres (2,622 sq. miles) comprising channels and canals widening into tree-fringed lakes, reed islands, numerous lakes and marshes, oak forests intertwined with lianas and creepers, desert dunes and traditional fishermen villages.



Mountains for all seasons

Alpine Fun in Winter and Summer

Access to Romania's mountains is guaranteed both by custom and by law. So you can walk or climb just about anywhere you like, both in winter and summer. The Carpathians provide a relaxing experience you will never forget.