BINP,
Super Charm-Tau factory and beyond.

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BINP, Novosibirsk.

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NRC “Kurchatov Institute”.

- A few generation of e+e- colliders was successfully operated at BINP since 1966 (VEP-1, VEPP-2, VEPP-2M, VEPP-4) with well recognized contribution to accelerator and particle physics.
- Now 2 colliders are in operation: VEPP-4M and VEPP-2000
- There is the only way for BINP in particle physics to future:
- BINP should become a part of international chain of laboratories – hosts of Mega-science projects.
- Every successful and efficient Mega-science project have to be strongly integrated with both national and international scientific community, due to strong synergetic effect in this kind of activity.

Principal advantages of international collaboration approach.

- High quality of international expertise can reduce the risk of failure in very complicated project implementation.
- International collaboration is the best way to develop and share new technologies.
- International collaboration helps to keep the highest level of scientific research and to open all latent abilities of scientific teams.

Physics at Super Charm-Tau factory

- Standard model precise verification and tests.
- Search for new physics beyond the standard model.
- Unforeseen new knowledge in fundamental matter properties.

Physics at Super Tau-Charm factory is complementary to LHCb and Super-B.

Complementary and beyond research activities:

- Nuclear physics experiments with high intensity e+ e- beams.
- Bright Synchrotron Radiation source based on high current low emittance relativistic beams.

Accelerator technology spin off:

- New generation of superconducting magnets and insertion devices.
- New technologies of intense particle beams generation for medical applications.
- To extend an existing frontier of superconducting RF accelerating systems for different applications.

Detector technology spin off:

- New fast scintillators and electronics development for medical applications.
- New generation of supercomputer hardware and software for enormous data processing.
- New generation of superfast digital communication infrastructure.
- Special chips design technologies.

General profit for Russian science, industry and technology.

- Each direction mentioned above can be a base of new national school of thought, new competence and new technology.
- The project can generate new world level scientific teams not only in BINP, but (the most important) in other Russian big laboratories.
- So Russian national net of big physical laboratories can be renewed on the base of tight cooperation during Mega-science projects implementation.

What does one need for successful implementation of Mega-science project?

- The presence of world-level scientific schools in the Project field.
- The recent history and experience of successful Projects implementation.
- Powerful system of students high level training in science and technology.
- Successful experience of work in large international collaborations.
- Modern and efficient national system of Mega-science Projects selection and funding.

What items does BINP have?

- The answer is: “NOT ALL.”
- Only hard job in tight collaboration with Russian and foreign laboratories will lead us to joint success.
- It will be fruitful to create some kind of Russian Particle, Accelerator and Plasma research board (or institution) in order to coordinate and plan the main activities of Russian laboratories in the field of Mega-science projects implementation.

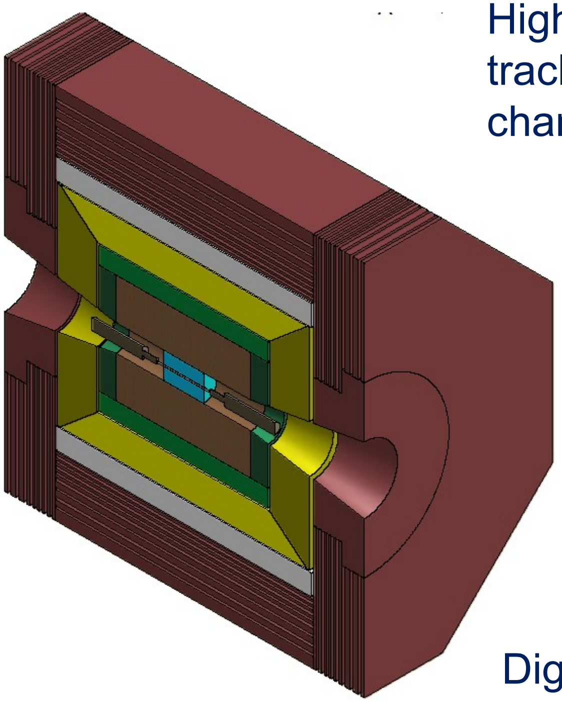
Thank You for Your attention!

Detector for Super c-τ factory

The detector is based on modern techniques in particle detection, electronics and computing. Most critical detector subsystems are

High precision charged-particle tracking (vertex detector+drift chamber)

Electromagnetic calorimeter with sub-ns time resolution and good energy resolution based on inactivated CsI or LYSO crystals



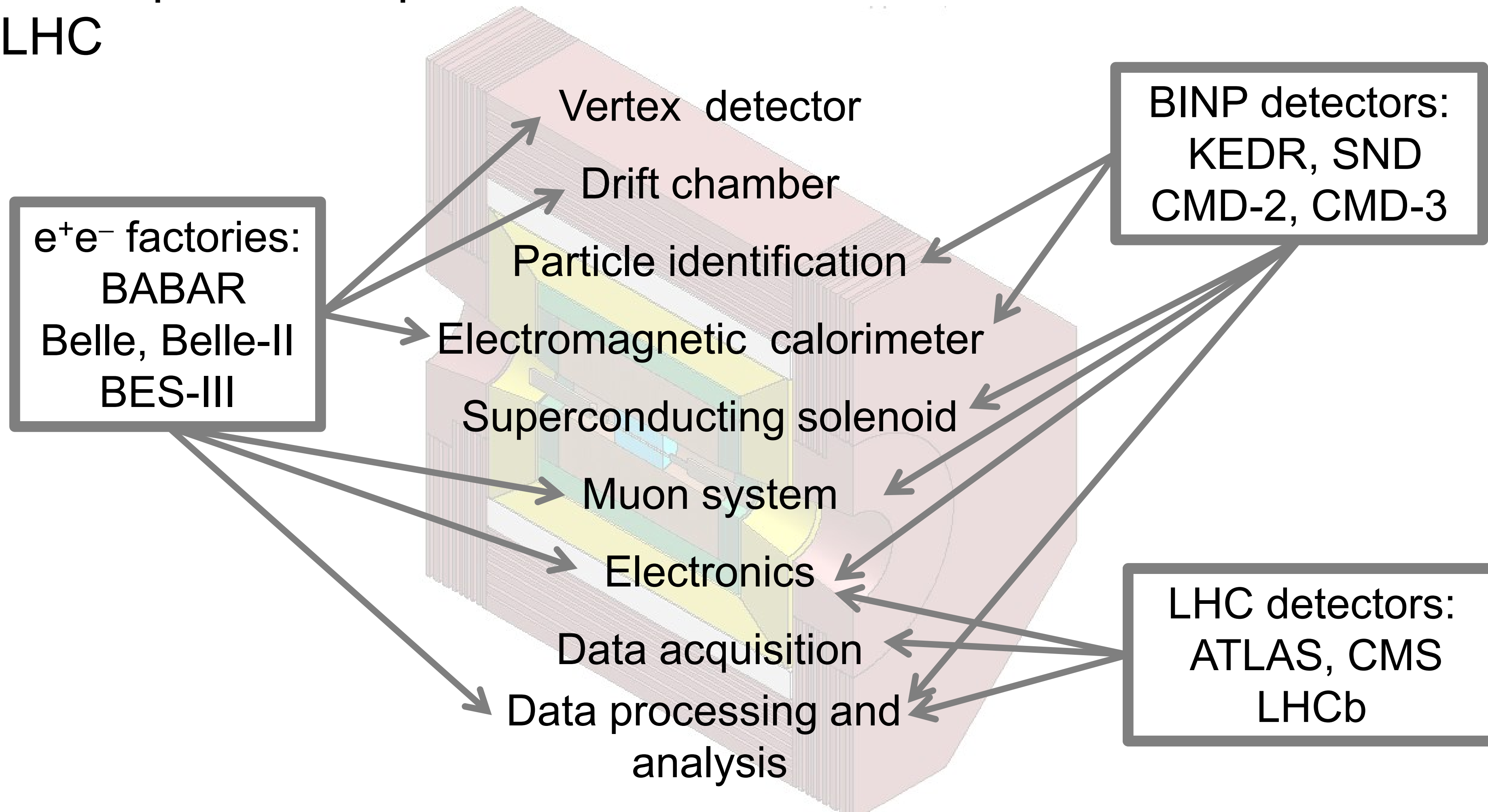
Excellent charged-particle identification based unique technique of Focusing Aerogel Ring Imaging Cherenkov detector (FARICH)

Intellectual trigger system providing event selection and background rejection at high detector occupancy.

Digitizing electronics and data acquisition system providing 30-kB event readout with 300-400 kHz rate

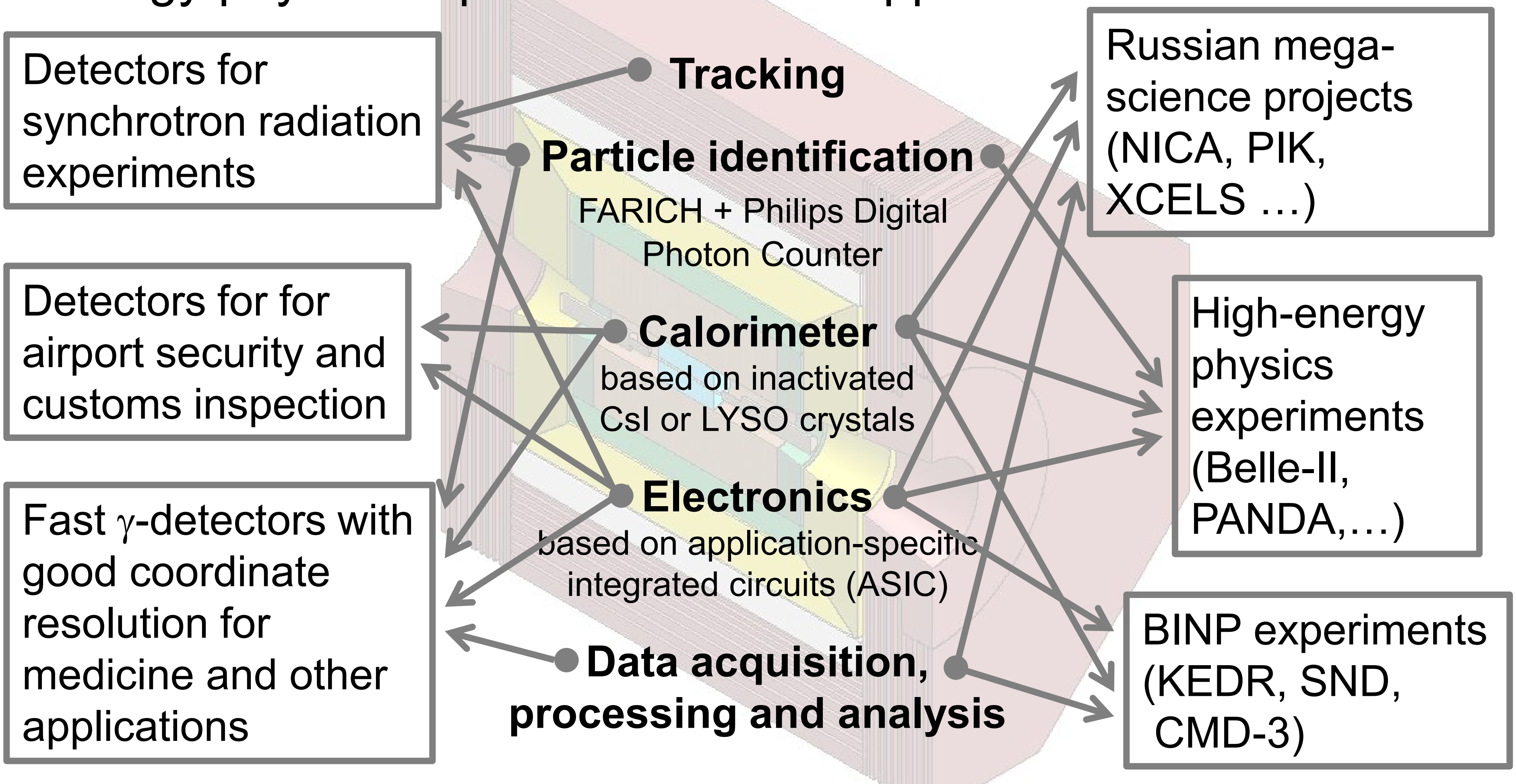
Detector for Super c-τ factory

The detector project uses experience, techniques and methods developed for experiments at BINP colliders, e^+e^- factories and LHC



Detector for Super c-τ factory

Developed detector technologies will be used in future high-energy physics experiments and in applications



Super c-τ factory and education

The collider and detector design and construction, experiments, and data analysis require efforts of hundreds physicists and engineers from many institutions.