

## THE PROJECT (Grant n.644294)

The JENNIFER (Japan and Europe Network for Neutrino and Intensity Frontier Experimental Research) consortium is formed by 13 academic and 1 industrial European organization and by 2 Japanese institutions: the KEK laboratory and the Institute for Cosmic Rays Research (ICRR) of the University of Tokyo. JENNIFER aims at jointly investigating the quark and lepton flavour structure of the standard model of particle physics through participation in world-leading experiments based in Japan. The JENNIFER project has started on April 1<sup>st</sup> 2015 and will finish by March 31<sup>st</sup> 2019. Together with its scientific objectives, JENNIFER aims also to cross-fertilize different communities: flavour and neutrino physicists, European and Japanese scientists, academic and industrial approaches.

## TECHNOLOGIES

- Silicon pixel detectors based on the DEPFET technology (Depleted FET) and double sided Silicon Strip detectors. Such solid state detectors require both ASIC integrated readout electronics or FPGA designed logic, with tight radiation hardness qualification.
- Fast readout electronic systems with digital signal processing, to be designed for different kind of detectors, with different signals and requirements.
- High bandwidth Data Acquisition systems, based on ATCA standard, with implementation of fast reconstruction algorithms on FPGAs.
- Control and computing embedded systems for real-time applications.
- Micro Pattern Gas Detectors (MPGD), with their possible applications (medical or security).
- Gadolinium doped water Cerenkov detectors, with applications in neutron detection and security.
- Different kind of photodetectors: APDs, Silicon PMs, Micro Channel Plate photodetectors, large area and low noise photosensors. Fast timing performance and high gain are the main issues.
- Reconstruction algorithms, Cloud computing and storage solutions. Large data volumes will have to be analyzed and shared between groups all around the world.
- Fast scintillating crystals, with high transparency and light yield.
- Diamond sensors produced by Chemical Vapour Deposition, both mono and polycrystalline.
- Laboratory instrumentation, including power supplies, high bandwidth scopes, fast and slow monitors, environmental sensors, high voltage power supplies for different kind of detectors.

## JENNIFER Consortium Members

Istituto Nazionale di Fisica Nucleare (INFN), Coordinator  
Deutsches Elektronen Synchrotron (DESY)  
Academy of Sciences (OEAW- HEPHY)  
Institute of Nuclear Physics, Polish Academy of Science (IFJ PAN)  
Charles University, Prague (UKP)  
Josef Stefan Institute (JSI)  
Middle East Technical University (METU)  
Centre National de la Recherche Scientifique (CNRS)  
Commissariat à l'Énergie Atomique aux Énergies Alternatives (CEA)  
Instituto de Física de Altas Energías (IFAE)  
Narodowe Centrum Badan Jadrowych (NCBJ)  
Queen Mary University of London (QML)  
Science and Technology Facilities Council (STFC-RAL)  
High Energy Accelerator Research Organization (KEK)  
Institute for Cosmic Ray Research, University of Tokyo (ICRR)  
Costruzioni Apparecchiature Elettroniche Nucleari (CAEN)

### CONTACTS

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