



BABYLUX

# Newsletter n° 1

March / June 2014

## Welcome to BABYLUX

Dear reader,

We are glad to send you the first newsletter dedicated to "BabyLux - An Optical Neuro-Monitor of Cerebral oxygen Metabolism and Blood Flow for Neonatology".

The project, partially funded by the European Commission under the ICT Policy Support Programme (ICT PSP) as part of the Competitiveness and Innovation Framework Programme, aims to provide an **innovative and reliable tool to monitor and assess brain blood flow and oxygenation in extremely preterm neonates**.

A precise, non-invasive and robust integrated system is the key to enable neonatologists to prevent neurological damages due to lack of oxygenation in the brain.

Started in January 2014 and lasting for the next three years, BabyLux involves **nine** scientific and technical **partners** and embraces to **four countries**: Italy, Spain, Germany, and Denmark.

Our newsletter will be issued every **six months** to let you know about the milestones of the project, to make you aware of the way the project is progressing, to share with you results and products. Hoping you might be interested in BabyLux, you'll find out more in the following lines and in the next issues. Stay with us!

The BabyLux Team

## Project presentation

BabyLux takes up complete R&D works and **extends already tested prototypes to the level of demonstrator**, bridging the gap between research products and commercialization. The project aims to provide a non-invasive, portable and highly reliable tool, easy to operate by busy clinical staff. The device can be brought to the bedside, measurements can be done in a few minutes and repeatedly, if the condition is critical.

The system uses **photonic technologies**, such as diffuse correlation spectroscopy, DCS, and time resolved near-infrared spectroscopy (TRS). This innovative combination provides an accurate state-of-the-art and robustness in TRS, and introduces, for the first time, DCS in a combined instrument.

After an initial laboratory demonstration, a **trial period** in real-life settings will follow, conducted in parallel both at the Mangiagalli Clinic, Ospedale Policlinico in Milan (Italy) and at the Rigshospitalet in Copenhagen (Denmark). Functioning and benefits will be evaluated by professional end-users during validation tests, carried out in conditions fitting in the clinical workflow, protocols and procedures.

**BabyLux stems from the analysis on the rise of preterm births**, 15 million every year in the world, and the need to reduce the possible serious clinical complications on the baby due to lack of oxygenation in the brain, like permanent physical damage and cognitive disabilities. Africa and Asia are the areas most affected by preterm births, while in Europe the phenomenon, although characterized by a significantly lower incidence, involves more than 25,000 high-risk cases.



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## Partners presentation

The BabyLux consortium gathers service content providers (physicists and engineers for biophotonic applications), professional end-users (neonatologists), and SMEs (photonic components producer, medical device manufacturer).

POLITECNICO DI MILANO



### Politecnico di Milano

Coordinates and manages the whole project. Is responsible for providing specific contents to the proposed solution by addressing specifications and demonstrations for TRS technology. Will also lead laboratory demonstration.



PICOQUANT

### PicoQuant GmbH

Leader in the field of pulsed diode lasers, time-resolved data acquisition, single photon counting, and fluorescence instrumentation, is providing the core opto-electronic components for the brain imager.



### Fondazione Politecnico di Milano

Having a vast experience in managing European projects, will support Politecnico di Milano for project management and dissemination activities. Through its business incubator unit it will support exploitation of the proposed solutions.



### Loop

Has more than 24 year experience in the market defining new business models by creating and developing new products and new user experiences. Thanks its background in medical device design will be responsible for the product design, user experience, interface design, and prototype manufacturing.



### ICFO-Institute of Photonic Sciences

World-leading research center in Photonics, through the ICFO-Medical Optics group, will design and construct the DCS module, develop software and specifications for DCS and analyze the DCS data and composite indices.



### Capital Region of Denmark

Rigshospitalet - Department of Neonatology, as a professional end-user with outstanding research and clinical experience in neonatology will develop the clinical application side of the tool, driving service demonstration in real-life and supporting the final evaluation of the integrated system.



### Fraunhofer Institute for Production Technology IPT

Has specific expertise in the field of optics and optical systems, will provide its technology portfolio for the design, development and fabrication of the fibre-optical sensor head that will be applied to the scalp for the parameters detection.



### Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico

Thanks to the research and clinical expertise of its Neonatal Unit will collaborate at the prototype's demonstration in the medical environment, defining clinical protocol settings and giving input for improvement of the integrated system.



### Hemophotonics SL

Spin-off of the ICFO-Institute of Photonic Sciences, will draw up an exploitation plan, the DCS system customization and control software adaptation to commercialize and further develop the final prototype.

## News & events

Milan, January 21 and 22, 2014

Partners got together in Milan to start the BabyLux project

"We are very proud to present a European project of this magnitude", said the project coordinator, Alessandro Torricelli, Associate Professor in the Department of Physics at Politecnico di Milano, "Our goal is to fill a void in the neonatal intensive care, where there aren't any reliable

tools to assess the brain blood flow and oxygenation in infants born prematurely. With the synergy and joint work of researchers, clinicians and SMEs from 4 European countries at the end of three years, we aim to have a significant step forward in this important area - improving the future of our smallest children."

"The ability to continuously monitor non-operative oxygenation and cere-

bral hemodynamics in premature infants - says Monica Fumagalli, Medical Director OU Neonatology and Neonatal Intensive Care Unit, Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico Milan - will enable us to broaden our knowledge and enable us to prevent neurological damage associated with pre-term births"

[Read more...](#)



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