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Glaucoma – Advanced, LAbel-free High resolution Automated OCT Diagnostics

GALAHAD

Deliverable D9.2 Public website online

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Vivid Components**

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<i>Dissemination level</i>		
<i>PU</i>	<i>Public</i>	<i>X</i>
<i>PP</i>	<i>Restricted to other programme participants (including the Commission Services)</i>	
<i>RE</i>	<i>Restricted to a group specified by the consortium (including the Commission Services)</i>	
<i>CO</i>	<i>Confidential, only for members of the consortium (including the Commission Services)</i>	

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Change register

Version	Date	Author	Organisation	Changes
A_DRAFT	05-Apr-2017	Bruce Napier	Vivid Components	Initial
A	05-May-2017	Bruce Napier	Vivid Components	Added reviewer: no updates

Reviewed by:
 Liam Henwood-Moroney G&H (Torquay) Version: A_DRAFT 05-May-2017

1. Statement of independence

The work described in this document is genuinely a result of efforts pertaining to the GALAHAD project: any external source is properly referenced.

Confirmation by Authors:	Bruce Napier	Vivid Components
	Jason Buckley	Vivid Components
	Andrea Napier	Vivid Components

2. Executive summary

The GALAHAD website was put online on 23-Feb-2017 at www.galahad-project.eu

The website includes pages on the consortium, background to the project, contact info and public documents.

The site was constructed by Jason Buckley, Andrea Napier and Bruce Napier, all of Vivid Components, with technical input and material from the consortium.

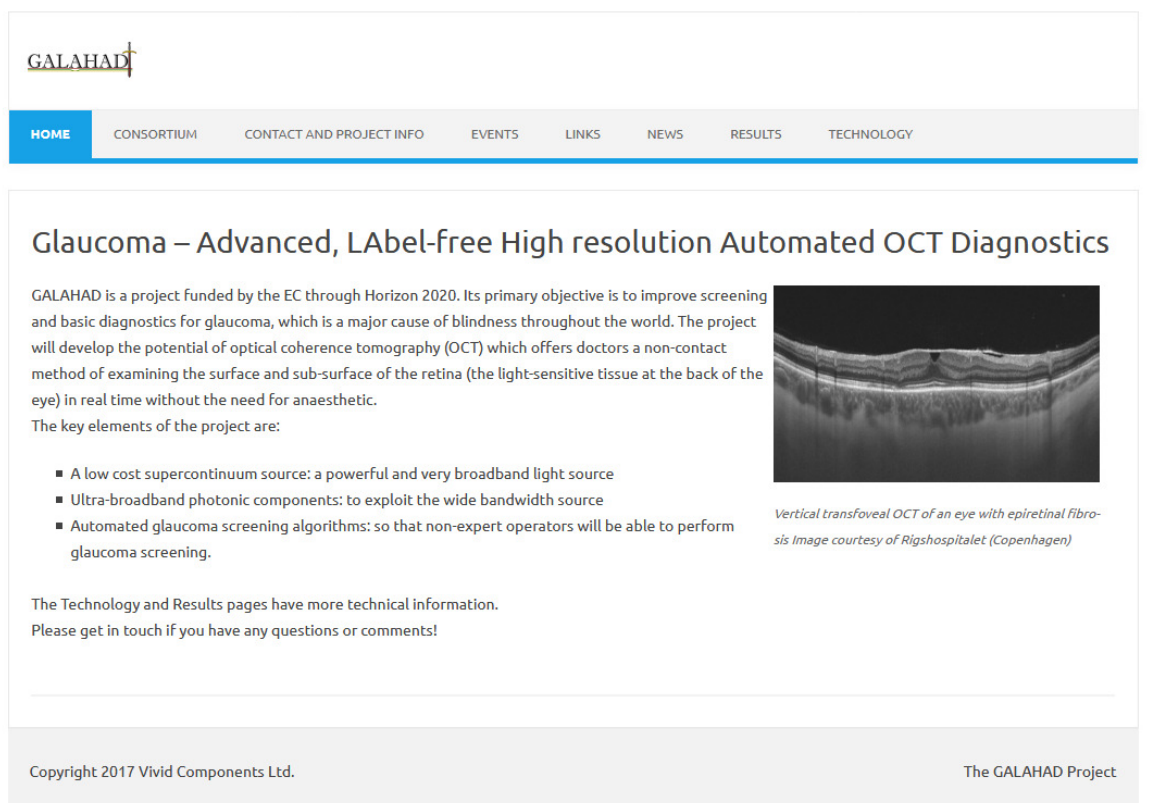
3. Introduction

The public website includes the following pages:

- Homepage Overview of the project objectives and background
- Technology Summary of the technical objectives and context
- Consortium Listing the project partners
- Results Library of all public outputs from the project
 - Separate pages for newsletters and publications
- News Detailing news items on the project (with RSS feed)
- Events List of relevant GALAHAD events, detailing partner participation
- Links Hyperlinks to and info on related projects
- Contact Contact info.

These pages will be maintained throughout the course of the project. A few screenshots are shown to illustrate the style and format of the site.

3.1. Homepage



The screenshot shows the GALAHAD project homepage. At the top left is the GALAHAD logo. Below it is a navigation menu with the following items: HOME (highlighted in blue), CONSORTIUM, CONTACT AND PROJECT INFO, EVENTS, LINKS, NEWS, RESULTS, and TECHNOLOGY. The main content area features a large heading: "Glaucoma – Advanced, Label-free High resolution Automated OCT Diagnostics". Below the heading is a paragraph of text describing the project's objectives and the technology being developed. To the right of the text is a vertical transverse OCT image of an eye. Below the image is a caption: "Vertical transverse OCT of an eye with epiretinal fibrosis Image courtesy of Rigshospitalet (Copenhagen)". Below the text and image is a list of key elements of the project, followed by a paragraph stating that the Technology and Results pages have more technical information and a request for contact. At the bottom of the page, there is a footer with the copyright notice "Copyright 2017 Vivid Components Ltd." and the text "The GALAHAD Project".

GALAHAD

HOME CONSORTIUM CONTACT AND PROJECT INFO EVENTS LINKS NEWS RESULTS TECHNOLOGY

Glaucoma – Advanced, Label-free High resolution Automated OCT Diagnostics

GALAHAD is a project funded by the EC through Horizon 2020. Its primary objective is to improve screening and basic diagnostics for glaucoma, which is a major cause of blindness throughout the world. The project will develop the potential of optical coherence tomography (OCT) which offers doctors a non-contact method of examining the surface and sub-surface of the retina (the light-sensitive tissue at the back of the eye) in real time without the need for anaesthetic.

The key elements of the project are:


- A low cost supercontinuum source: a powerful and very broadband light source
- Ultra-broadband photonic components: to exploit the wide bandwidth source
- Automated glaucoma screening algorithms: so that non-expert operators will be able to perform glaucoma screening.

The Technology and Results pages have more technical information.
Please get in touch if you have any questions or comments!

Vertical transverse OCT of an eye with epiretinal fibrosis Image courtesy of Rigshospitalet (Copenhagen)

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3.2. Events




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Events

Upcoming events


SPIE Optics + Optoelectronics 2017
24-27 Apr-2017; Prague, Czech Republic

SPIE Optics + Optoelectronics is where leading researchers, engineers and programme managers share their latest advances, highlighting the technologies that drive Europe's largest optoelectronic infrastructure projects. Meeting content includes: Nonlinear Optics and Its Applications; Optical Sensors; Micro-structured and Specialty Optical Fibres; High-Power, High-Energy, and High-Intensity Laser Technology and Medical Applications of Laser-Generated Beams of Particles




CLEO 2017
Conference on Lasers and Electro-Optics 2017
14-19 May-2017; San Jose, USA

CLEO is a key international forum for scientific and technical optics, uniting the fields of lasers and opto-electronics by bringing together all aspects of laser technology, from basic research to industry applications. Attendees have the opportunity to hear and present ground-breaking research, share ideas, and network with colleagues and luminaries. CLEO presents a world-renowned peer-reviewed program and offers high quality content from five core event elements: Fundamental Science, Science & Innovations, Applications & Technology, Market Focus and CLEO:EXPO.




ECBO 2017
European Conferences on Biomedical Optics 2017
25-29 Jun-2017; Munich, Germany

Sponsored by OSA and SPIE, the European Conferences on Biomedical Optics (ECBO) bring together scientists, engineers, and clinicians who work with optics and photonics to solve problems in medicine and biomedicine. Presentations will cover basic science, novel technology and applications in the areas of advanced microscopy, clinical and biomedical spectroscopy, diffuse optical imaging, molecular imaging, optical coherence tomography and other coherence techniques, therapeutic laser applications, laser-tissue interactions, opto-acoustic methods, and other novel biophotonics techniques.




CLEO Europe 2017
Conference on Lasers and Electro-Optics Europe 2017
25-29 Jun-2017; Munich, Germany

The technical programme will present oral and poster contributions encompassing all fields of quantum electronics, lasers and photonics. All aspects of the technologies will be covered, including fundamentals, device development, systems, and applica-



3.3. Technology



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Technology

Current glaucoma diagnostics


The project GALAHAD targets the critical need for better glaucoma diagnostic systems. Glaucoma is an age-related major cause of blindness. The eye disease is characterized by an irreversible damage to the optic nerve head caused by increased intra-ocular pressure. The current screening and basic diagnostics for the disease involve intra-ocular pressure measurement, visual field tests and detection of structural damage to the optic nerve head and retinal nerve fibre layer. The present methods have high rates of false positive or false negative results since the in depth analysis of optical nerve head damage is not possible due to the poor resolution of available optical technologies. A leading candidate is optical coherence tomography (OCT), but the required axial resolution is $\sim 1 \mu\text{m}$, well beyond the 3-5 μm resolution of commercial systems.

GALAHAD solution: UHR PS OCT

GALAHAD aims to develop a label free, compact and easy to operate high resolution diagnostic OCT system. The multi-band and multi-modal system will use sub-micron ultra-high resolution polarisation sensitive OCT (UHR PS OCT). The key breakthrough elements are:

- A revolutionary low cost multi-band supercontinuum light source.
- Ground-breaking ultra-broadband photonic components required to exploit such a source
- Automated glaucoma screening algorithms: using end user evaluation of cell and animal models and tissue samples, automated algorithms will be developed, trained and tested so that non-expert operators will be able to perform glaucoma screening.

The GALAHAD in depth glaucoma diagnostics after a positive screening with conventional methods will dramatically reduce false positive and false negative screening results and decrease the number of patients suffering from glaucoma-related disability. The project is driven by world leading companies and manufacturers of OCT systems and guided by requirement specifications and validated by high ranking clinical and experimental ophthalmologists in their clinical settings.



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