

TBSC Specific Project Description¹

1. Title: Honors class 'From Solar to Fuel with Bio'.

Theme: 4 Number(s): C4E3

2. Responsible cluster team member/principle investigator

Name: 5.1.2e

Institute: Leiden Institute of Chemistry, Leiden University

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In collaboration with: 5.1.2e (VU), 5.1.2e (UVA), 5.1.2e (TUD), 5.1.2e (RUG), 5.1.2e (WUR), 5.1.2e (Twente), for recruiting students

Primary workplace (laboratory and building where the project will be performed): Lorentz Center, Leiden University

3. Summary (1/2-A4)

The Universities of Leiden, Amsterdam (VU + UvA), Delft, Groningen, Twente and Wageningen will together organize an interdisciplinary honors class. Plan is to yearly organize a photosynthesis workshop at the International 'Lorentz Centre'. About 20 undergraduate students will be invited to participate and will be selected on a competitive base. Students will be asked to write a short research project on photosynthesis. During the honors class, the research projects will be further developed under the supervision of BioSolar Cells (BSC) teachers. A jury will select the best projects and students will be encouraged to conduct the research as their graduation program (aio project), or will be brought in contact with a coach to develop a small startup business. The project will be a success if we are able to stimulate excellent students already in an early stage to develop their own ideas and to bring these ideas into the practical implementation level.

4. Keywords

5. Priority Research (1-2 A4)

5.1 Research Direction

The research direction varies depending on the workshops. Themes 1, 2, 3 will all contribute to the workshops from their research program, and when appropriate theme 4 (societal debate) will also contribute. The cluster teams will be approached to stimulate ideas.

5.2 Scientific Context

The scientific context is international, as the Lorentz centre requires an international setting for every workshop. The organizing committees must include at least one international organizer. Also the participants come from all over the world. The workshops will provide an opportunity for the young researchers involved in the BSC

¹ To be submitted for approval to the TBSC SAB; upon approval basis for the SPA.

program to exchange ideas and to present their results in an international stimulating environment.

5.3 Potential Impact

A strong series of workshops will provide BSC researchers with a “window to the world” as well as giving excellent exposure and scientific dissemination of novel ideas developed within BSC. A selected number of undergraduate students will participate to the workshops and have the opportunity to develop their own ideas and to bring these ideas into the practical implementation level.

6. Research and Valorisation Aims (1-2 A4)

6.1 Scientific Challenges

The main goal is to cultivate potential future leaders in the three main themes of TBSC, artificial systems, micro-organisms, and improvement of plants, by stimulating excellent students at an early stage to formulate their own ideas, and to start the process of developing their ideas in a concrete project. This will also contribute to the development of a scientific community in that particular topic, and will also shorten the time that is needed to bring new ideas from the scientific level to the practical implementation, since the initiative is given to the young generation.

Based on the previous experience with honours classes, we will for each course generally follow these steps:

- a. Acquisition of about 20 excellent students from the BSC partners.
- b. Students together with their supervisors develop a program for a workshop with international speakers. This workshop program is then evaluated according to the regular competition at the Lorentz Centre for a go/nogo decision based on actual scientific criteria.
- c. An introduction into the subject of the workshop is given to the class by BSC teachers and researchers.
- d. The honours students participate to the workshop.
- e. During and after the workshop, the students write their own research proposal.
- f. Students mutually evaluate the proposals with SWOT analyses under the supervision of teachers (senior participants of the Lorentz workshops).
- g. Students improve their proposals based on the evaluations.

A jury evaluates the research proposals. The student with the best research proposal will be considered by the scientific directors of the participating institutes for an AIO position. A different jury organized together with the Valorisation Office of BioSolar Cells and the involvement of (some of) the Technology Transfer Offices / Centres of Entrepreneurships of the different participating Universities will evaluate the proposals with entrepreneurial potential and will bring the best entrepreneurial students in contact with a coach to develop a small startup business.

6.2 Valorisation plan

All workshops will be accessible to interested BSC partners from academia or industry. Because all lectures will be freely available through the Lorentz website, it will be possible to inform our partners on the results of the workshops, their possible impact, and the new vision

that they generate, while in addition the newly generated insights will be used in lectures given to our bachelor and master students through other BSC projects within theme 4, education. New insights obtained in the workshops are likely to generate new fundamental research questions that will form the basis of future grant applications. Successful young entrepreneurs early in their career will explore the feasibility of a spin-off company based on BSC research activities. With this transitional initiative we anticipate the possibility of unexpected and novel business opportunities.

Economic development:

Industrial partners from BSC will be invited to participate at the workshops. Excellent students at an early stage will be stimulated to formulate their own ideas, and to translate their ideas in a concrete project.

Social development:

The training of the best students in our universities will facilitate the dissemination of knowledge into society. BSC students will be given an opportunity to become exposed to cutting edge research with a specific focus on BSC topics.

Providing access to infrastructure

Equipment, tools, expertise addressing needs of public and private organisations.

Not applicable

6.3 Timescale: List of milestones, go/no-go decisions and key deliverables

(focus on TBSC deliverables: project milestones and targets, including dissemination)

Month	Milestones and Deliverables
12	At least one workshop organized
24	At least two workshops organized
36	At least three workshops organized
36	(including mid-term report)
48	At least four workshops organized
60	At least five workshops organized
General deliverables after 60 months	(including final report) At least 5 workshops organized

The team leaders will monitor progress twice per year and will report to the steering committee at the theme level. The mid-term review after 36 months and the final report will be at the project level.

7. Project Management

7.1 Project Team

(focus on TBSC deliverables: research coalition, responsibilities, young people involvement, build in the capacity for change, active involvement of end users and dissemination target group. Think carefully who to involve in the project. The project team should establish a coalition that can assume a guiding role in addressing the principle knowledge gap and reaching the key deliverables.)

Name	Age	Responsibility	Partner	Hrs/week
5.1.2e	5.1.2e	Project leader	UL	1.5

7.2 Budget: TBSC resources and “eerste geldstroom” matching

Personnel / Name	
5.1.2e	
Personnel / Name	
5.1.2e	
Consumables	
General	
Specific	
Equipment	
Facilities	
Lorentz Centre	
Travel	
Outsourcing	

1) PhD, Postdoc, Assistant, Scientist, Senior Scientist, UD, UHD, Professor

7.3 Budget: Matching resources from “tweede en derde geldstroom”

Personnel / Name	FTE	2010 (fte)	2011 (fte)	2012 (fte)	2013 (fte)	2014 (fte)	2015 (fte)	Total (fte)
		2010 (€)	2011 (€)	2012 (€)	2013 (€)	2014 (€)	2015 (€)	Total cost (k)
Personnel / Name	Level ¹⁾							
								Subtotal
Consumables								
General								
Specific								Subtotal
Equipment								Subtotal
Facilities								Subtotal
Travel								Subtotal
Outsourcing								Subtotal
						Total		

¹⁾ PhD, Postdoc, Assistant, Scientist, Senior Scientist, UD, UHD, Professor

7.4 Project Summary, TBSC funding + Matching sources

	2010 (€)	2011 (€)	2012 (€)	2013 (€)	2014 (€)	2015 (€)	Total cost (€)
TBSC Resources	5.1.2b						
Finances from other sources (Please mention e.g. Own Resources (1e geldstroom) STW, IOP, NBIC etc)							
1. Lorentz Centre (1e GS)							
2 LIC (1e GS)							
3.....							
4.....							
						5.1.2e + Matching	

7.5 Justification of resources (max 1 A4)

a. Personnel

5.1.2e will coordinate this project, and students in the participating institutions will be approached through 5.1.2e, 5.1.2e, 5.1.2e, 5.1.2e. The matching will be provided by 5.1.2e. Lorentz Centre in the form of matching of workshop budgets and with personnel support.

b. Consumables

An amount of 5.1.2b is reserved for the coordinator for the operational management of this project (announcing the workshops in the BSC community, selecting honours students from the universities, talking with the organizers of each workshop, also to make sure that industrial partners of BSC and people involved in theme 4 will get involved)

c. Facilities

Budget for each workshop is 5.1.2b (travel, subsistence and accomodation)

d. Equipment

e. Outsourcing

f. Travel



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8. Signatures

- a. *Legal/statutory/authorized representative of the principle investigators organization: Leiden University*

5.1.2e

Name:

5.1.2e

Place:

Leiden

Date:

08-04-11

- b. *Director Operations BioSolar Cells*

5.1.2e

Name:

5.1.2e

Place: Wageningen

Date:

13/4/11

