



LASSIE: An FP7 ITN

Laboratory Astrochemical Surface Science in Europe

Martin McCoustra

Coordinator

Heriot-Watt University, Edinburgh

LASSIE: The Alternatives?



Lassie, (2005), Dir. C. Sturridge,
Samuel Goldwyn Films



Robert Burns
(1759-1796)

The Highland Lassie

Nae gentle dames, tho' e'er sae fair,
Shall ever be my muse's care:
Their titles a' are empty show;
Gie me my Highland Lassie, O.

...

LASSIE: The ITN



A consortium of

- Solid state and surface astrochemistry research groups at 13 institutions across Europe

Heriot-Watt University (HWU)

Aarhus University (AU)

Paris Observatory, Université de Cergy (OBSParis)

University of Münster (UM)

Max Planck Institute for Astronomy, Heidelberg / University
of Jena (MPG)

National Astrophysics Institute, Catania (INAF)

Leiden University Observatory (LUO)

Chalmers University, Gothenburg (Chalmers)

University of Gothenburg (UGot)

University College London (UCL)

The Open University (OU)

Queens University Belfast (QUB)

University of Strathclyde (SU)

LASSIE: The ITN



A consortium of

- Solid state and surface astrochemistry research groups at 13 institutions across Europe
- 6 industrial partners

Gridcore
Hiden Analytical
Kore Technology
HITEC2000
Quantel SA
SPECS GmbH

LASSIE: The ITN



A consortium of

- Solid state and surface astrochemistry research groups at 13 institutions across Europe
- 6 industrial partners
- A public engagement consultancy

Graphic Science

Management Structure



LASSIE Management Group (LMG)

- Day-to-day administration of the network

3 Working Groups manage the most important aspects of the network operation.

- Training Coordination Group (TCG)
- Research Coordination Group (RCG)
- Outreach & Promotion Group (OPG)

Industrial Liaison Group (ILG)

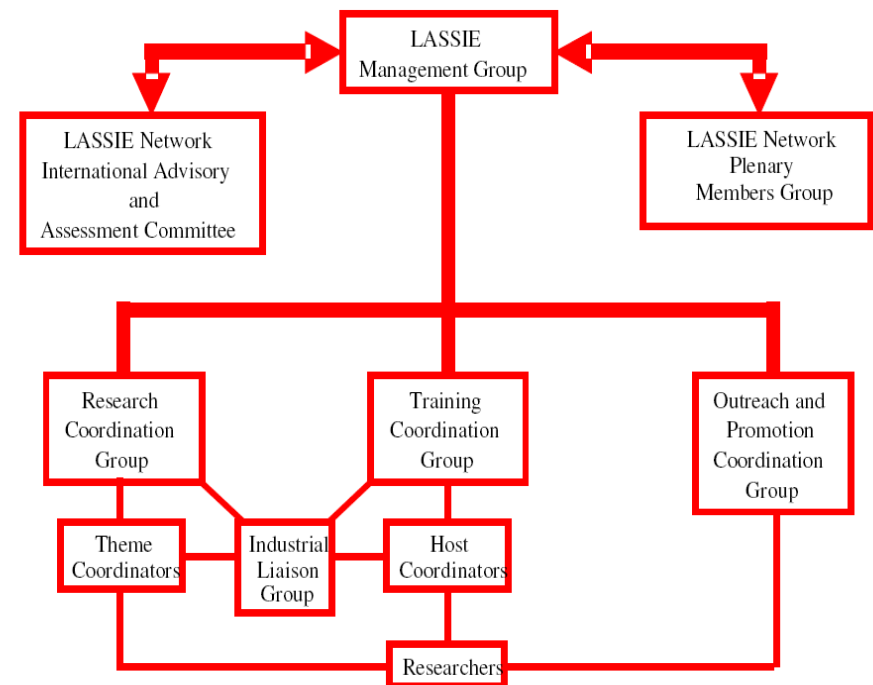
- enables integration of the commercial partners.

Plenary Management Group (PMG)

- overall decision making authority.

International Advisory & Assessment Committee (IAAC)

- Monitors the network's progress with an external and objective point-of-view



Recruitment: Grant Agreement



		ESR Appointments [ESR months]		Total ESR Appointments [Months]	ER Appointments [ER months]
		Tranche 1 01/02/2010	Tranche 2 01/02/2011		
1	HWU	1 [24], 1[18]	1 [18]	3 [60]	1 [24]
2	AU	1 [36]	1 [12]	2 [48]	1 [24]
3	OBS Paris	1 [36]	3 [36]	4 [144]	---
4	UM	1 [36]	1 [36]	2 [72]	---
5	MPG	2 [36]	1 [36]	3 [108]	---
6	INAF	---	---	---	1 [24]
7	LUO	2 [36]	---	2 [72]	---
8	Chalmers	1 [24]	1 [24]	2 [48]	---
9	UGOT	1 [36]	1 [12]	2 [48]	1 [24]
10	UCL	1 [36]	1 [36]	2 [72]	---
11	OU	1 [24]	1 [24]	2 [48]	---
12	QUB	1 [36]	1 [36]	2 [72]	---
13	SU	1 [24]	1 [24]	2 [48]	---
	Total	15 [474]	13 [366]	28 [840]	4 [96]

Recruitment: Consortium Agreement



		ESR Appointments [ESR months]		Total ESR Appointments [Months]	ER Appointments [ER months]
		Tranche 1 01/02/2010	Tranche 2 01/02/2011		
1	HWU	1 [36] ↓	1 [24] ↑	2 [60]	1 [24]
2	AU	1 [36]	1 [12]	2 [48]	1 [24]
3	OBS Paris	1 [36]	2 [36] ↓	3 [108] ↓	---
4	UM	1 [36]	1 [36]	2 [72] ↓	---
5	MPG	2 [36]	1 [24] ↓	3 [96] ↓	---
6	INAF	---	---	---	1 [24]
7	LUO	2 [36]	1 [36], 1 [12] ↑	4 [120] ↑	---
8	Chalmers	1 [24]	1 [24]	2 [48]	---
9	UGOT	1 [36]	1 [12]	2 [48]	1 [24]
10	UCL	1 [36]	1 [36]	2 [72]	---
11	OU	1 [24]	1 [24]	2 [48]	---
12	QUB	1 [36]	1 [36]	2 [72]	---
13	SU	1 [24]	1 [24]	2 [48]	---
	Total	14 [468] ↓	14 [372] ↑	28 [840]	4 [96]

Recruitment: Current Status



		ESR Appointments [ESR months]	Total ESR Appointments [Months]	ER Appointments [ER months]
1	HWU	1 [33.5], 1 [26]	2 [59.5]	1 [24]
2	AU	1 [36]	1 [36]	1 [24]
3	OBS Paris	1 [36], 2 [24], 1[24]	4 [108]	---
4	UM	1 [36], 1 [27.5]	2 [63.5]	---
5	MPG	2 [36], 1 [24]	3 [96]	---
6	INAF	---	---	1 [24]
7	LUO	3 [36], 1 [12]	4 [120]	---
8	Chalmers	1 [33]	1 [33]	---
9	UGOT	1 [36]	1 [36]	1 [24]
10	UCL	2 [36]	2 [72]	---
11	OU	2 [24]	2 [48]	---
12	QUB	2 [36]	2 [72]	---
13	SU	1 [27], 1 [19]	2 [48]	---
	Total	26 [792]		4 [96]

Appointments in *italics*
have not yet commenced.

Recruitment: Current Status



		ESR Appointments [ESR months]	Total ESR Appointments [Months]	ER Appointments [ER months]
1	HWU	1 [33.5], 1 [26]	2 [59.5]	1 [24]
2	AU	1 [36]	1 [36]	1 [24]
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6	INAF	---	---	1 [24]
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11	OU	2 [24]	2 [48]	---
12	QUB	2 [36]	2 [72]	---
13	SU	1 [27], 1 [19]	2 [48]	---
	Total	26 [792]	-2 [-48]	4 [96]

Appointments in *italics* have not yet commenced.

Recruitment shortfall.

Recruitment: Current Status



		ESR Appointments [ESR months]	Total ESR Appointments [Months]	ER Appointments [ER months]
1	HWU	1 [33.5], 1 [26]	2 [59.5]	1 [24]
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	Total	26 [792]	[-24]	4 [96]

Appointments in *italics* have not yet commenced.

Recruitment shortfall.

Secondment of ESRs already in the network.

24 months of funding to redistribute in the network.

Recruitment Difficulties



☞ Start date of the project.

- Re-negotiated start date (01/02/2010) was very soon after the signing of the Grant Agreement (24/11/2009) – too soon to allow appointment of researchers by the start date.
- 6 months out of synchronicity with the natural cycle of graduations in Europe.
- 2 tranche structure of recruitment has been effectively lost.

☞ Competition for recruits has been high, both between beneficiaries and with external organisations.

- Some appointments have been delayed due to the need to re-advertise positions due to the loss of the best candidates.

☞ Researcher salaries offered under the terms of the FP7 Marie Curie Programme are below the nationally agreed standards in some Scandinavian countries.

- Local solutions have been found.
- Some appointment delays while the balance of funding was sought.

Recruitment Difficulties



☞ Immigration restrictions in the UK.

- Severe limitations have been placed on the number of work permits (tier 2 applications) that UK universities can apply for. Since ESRs are treated as employees rather than research students (tier 5 applications), delays have been experienced while university staff are persuaded to support tier 2 applications for research student level appointments.
- The UK Borders Agency has refused visa applications for some appointees, requiring re-advertisement of positions.

☞ Some UK Institutions have attempted to charge tuition fees in excess of €5000 p.a.

- Funding does not exist within the LASSIE budget for this level of fees.
- In some cases local solutions have been found.
- In some cases, the intent has been withdrawn.

☞ Despite these problems, the quality of the ESRs and ERs that have been recruited to the network is excellent.

Recruitment Statistics



👉 30 Appointments

- 13 Female (43%).
- Diverse nationalities
 - 18 from EU Member States (60%).
 - 13 EU nationalities.
 - 10 other nationalities.

Secondments



☞ Delays in recruitment have also meant delays to secondments.

- Several academic secondments have been performed.
- Industrial secondments are in the planning stage.

☞ Academic secondments

- Of particular value in promoting and expanding collaboration between beneficiaries.

☞ Industrial Secondments

- Due to the profoundly academic nature of the research field, these provide the principal means by which the network can interact with the private sector.

Acknowledgements



LASSIE is supported by the European Commission's 7th Framework Programme under Grant Agreement Number 238258

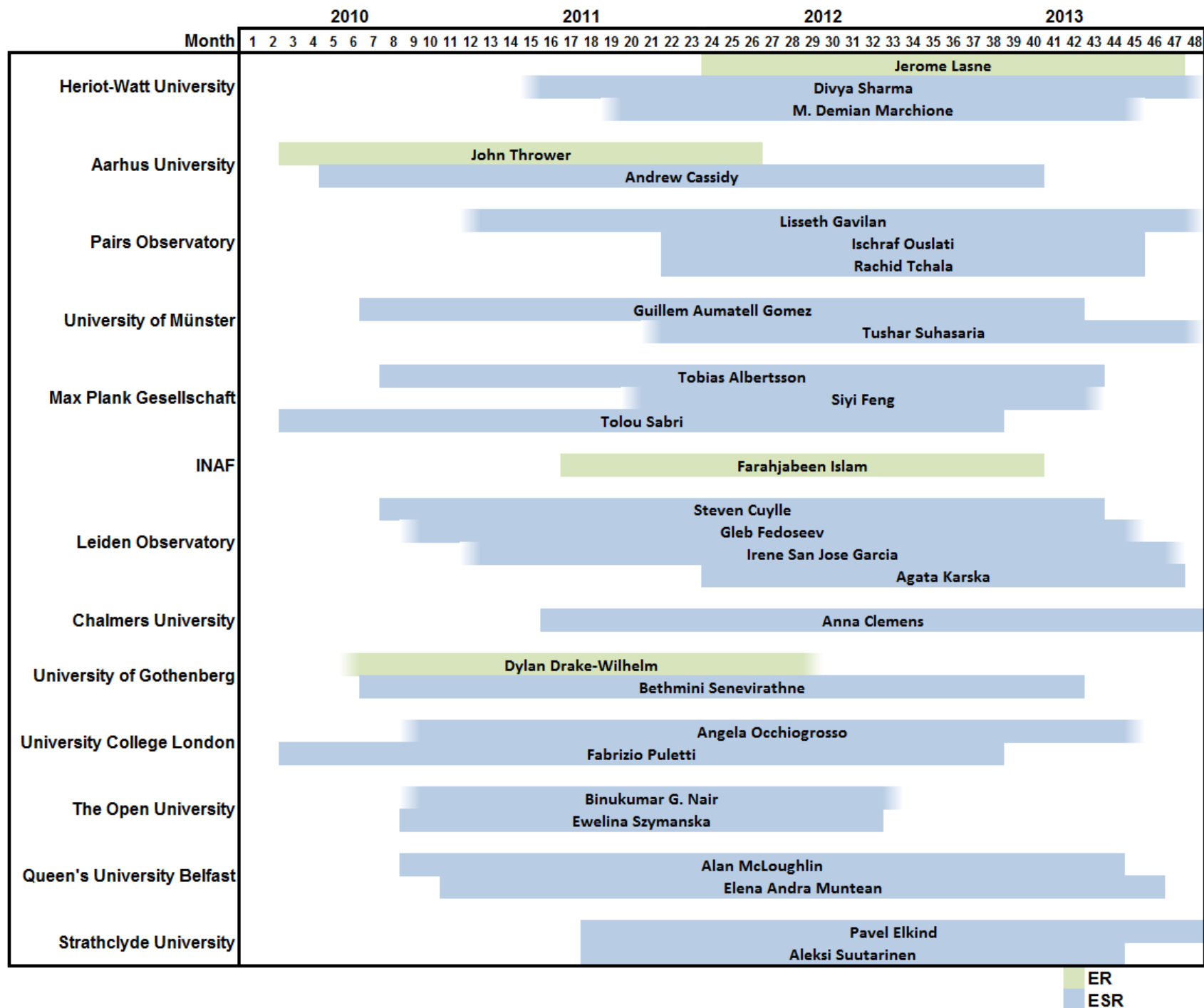
<http://www.lassie-itn.eu>



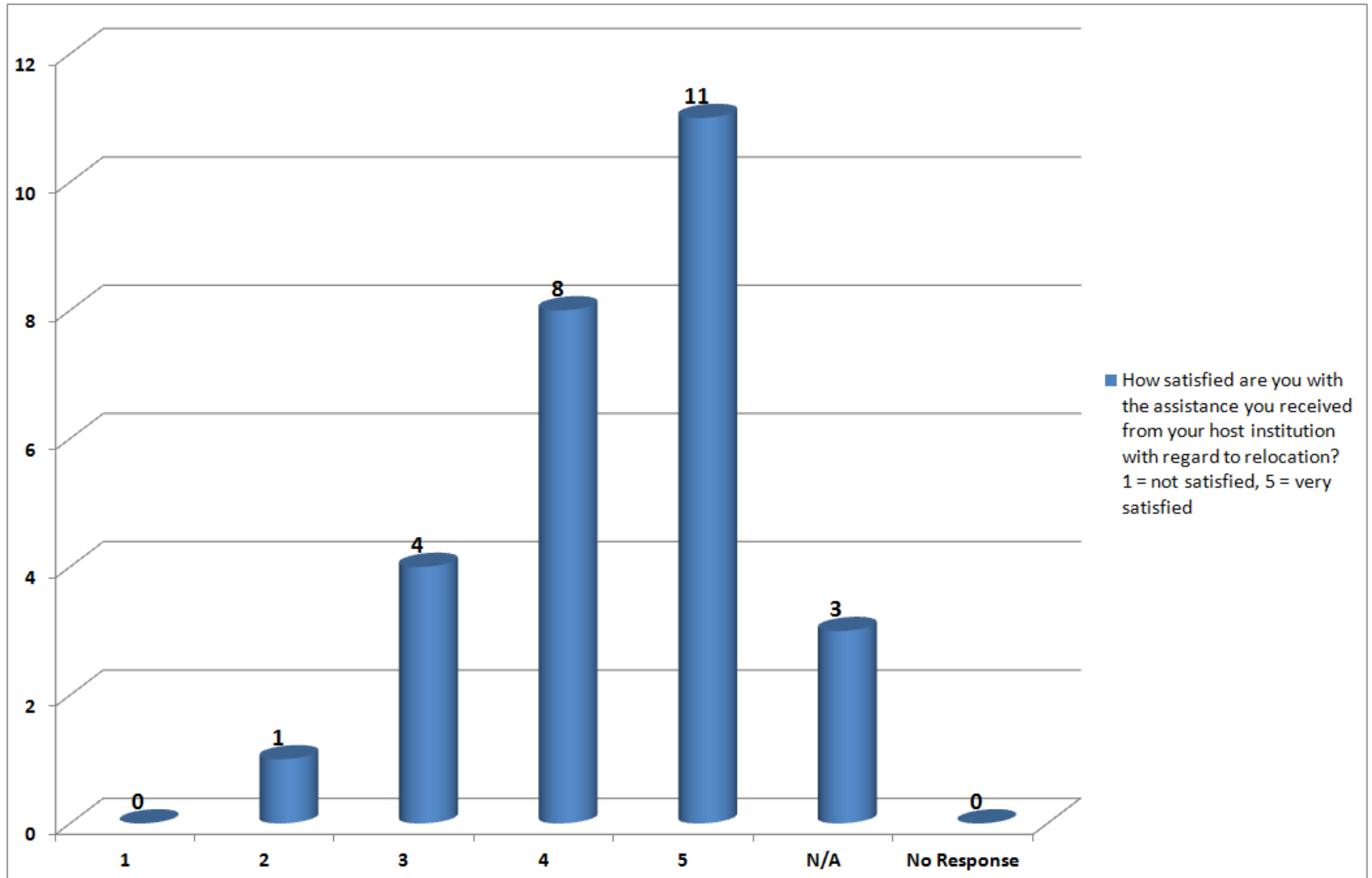
Training
LASSIE-ITN



Mid-Term Review Meeting
14th November 2011

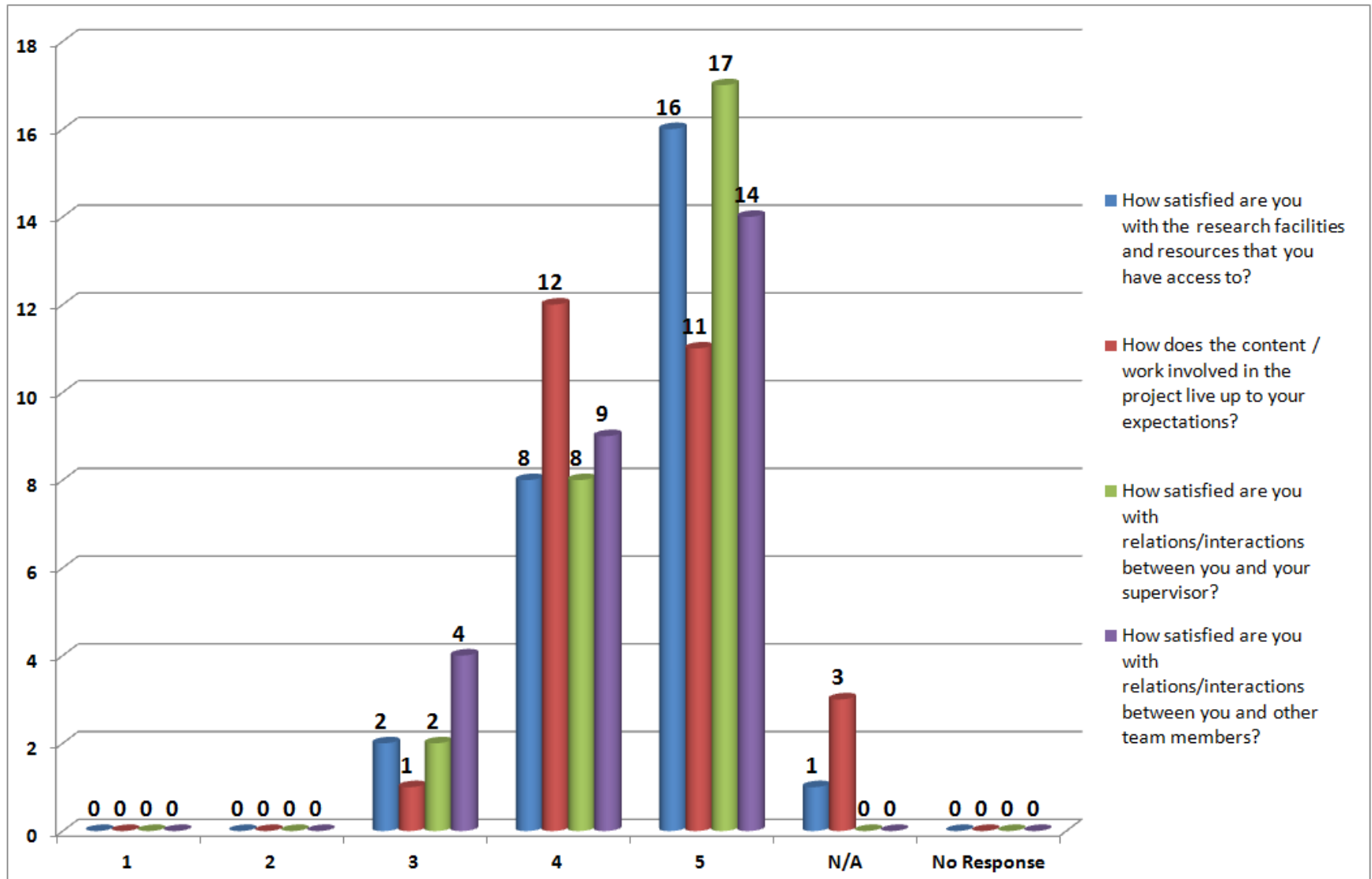


Start up

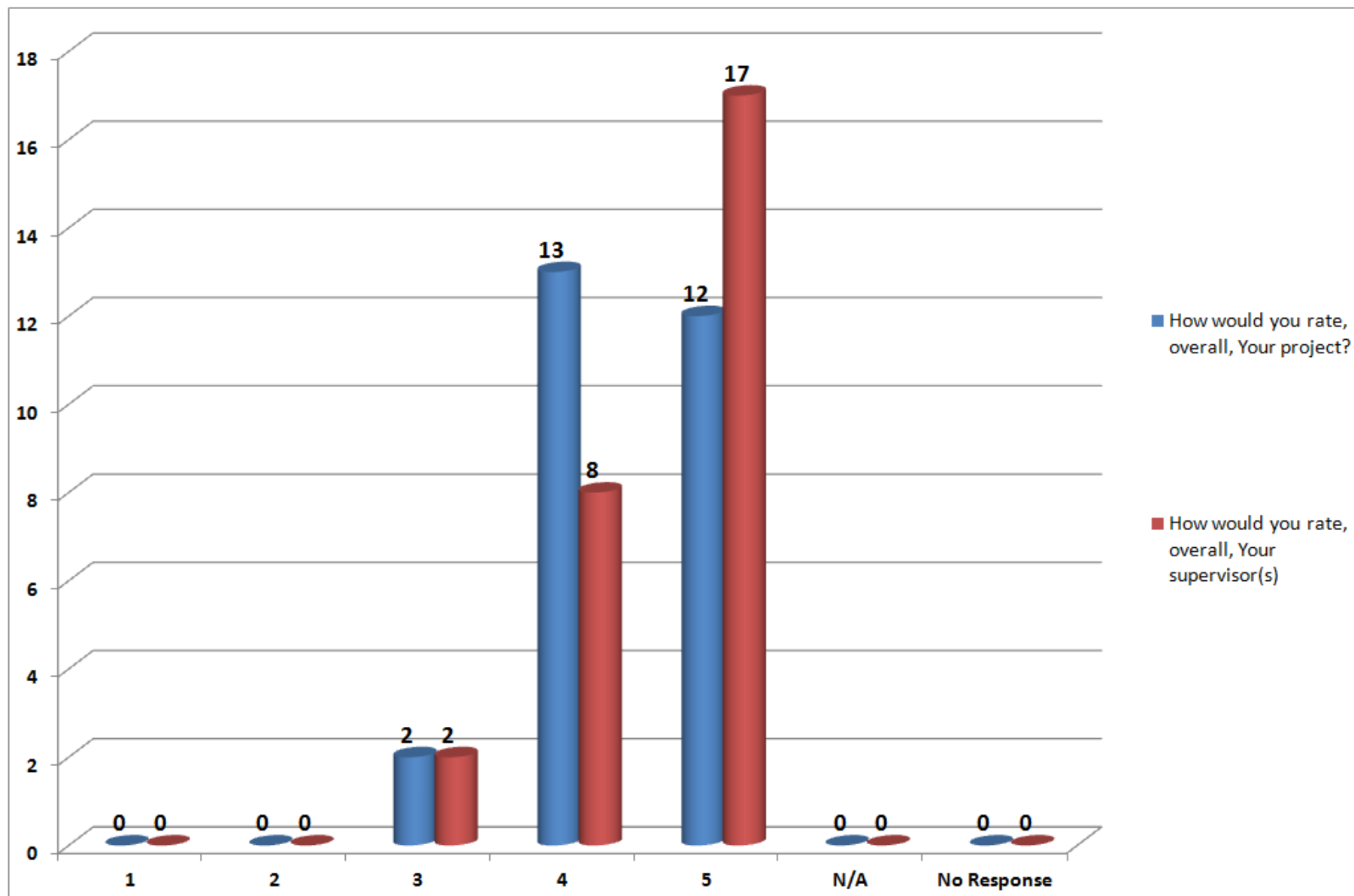


27 have finalized contracts and CDPs, 18 have been offered to attend language courses

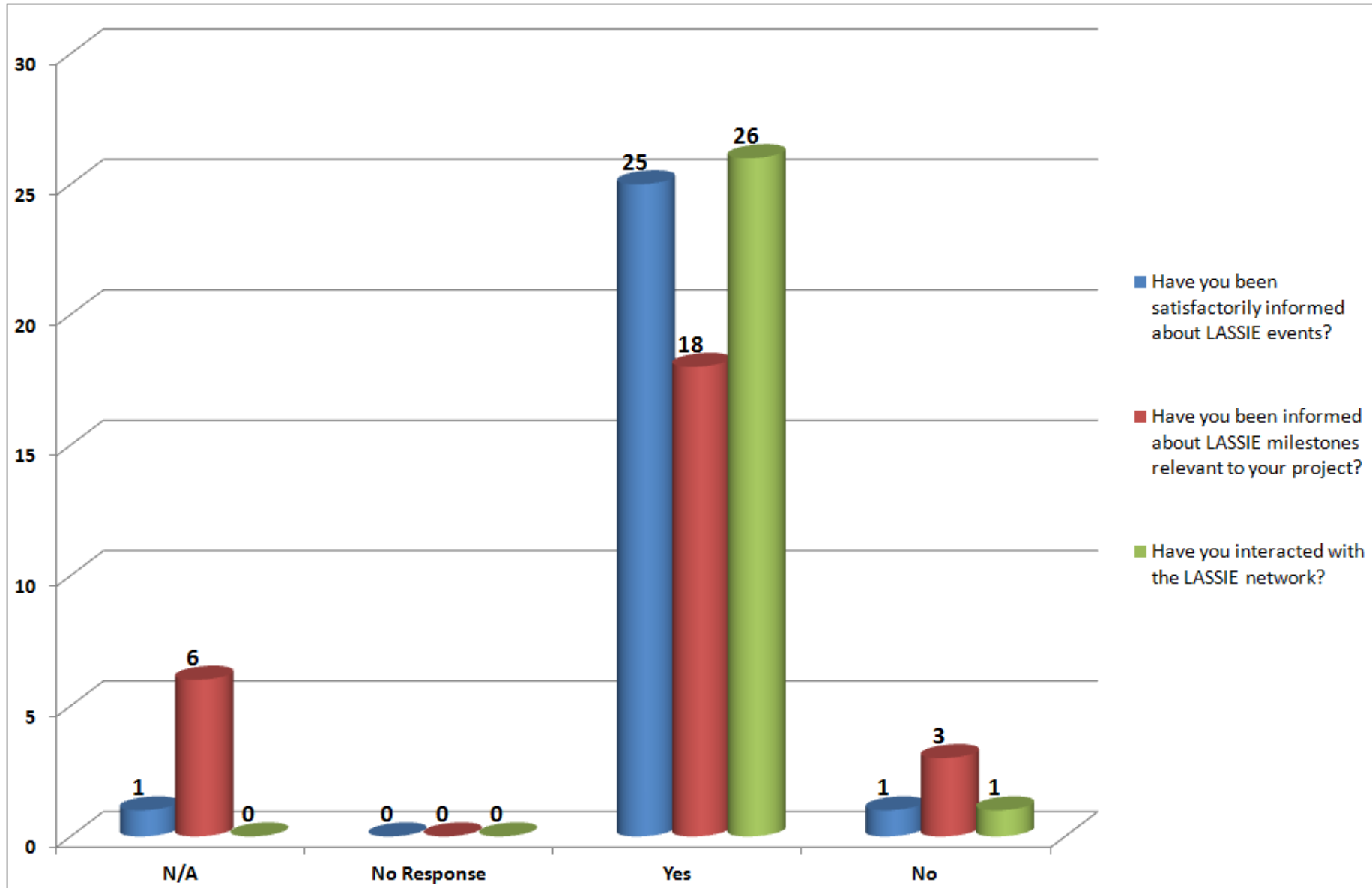
Satisfaction survey



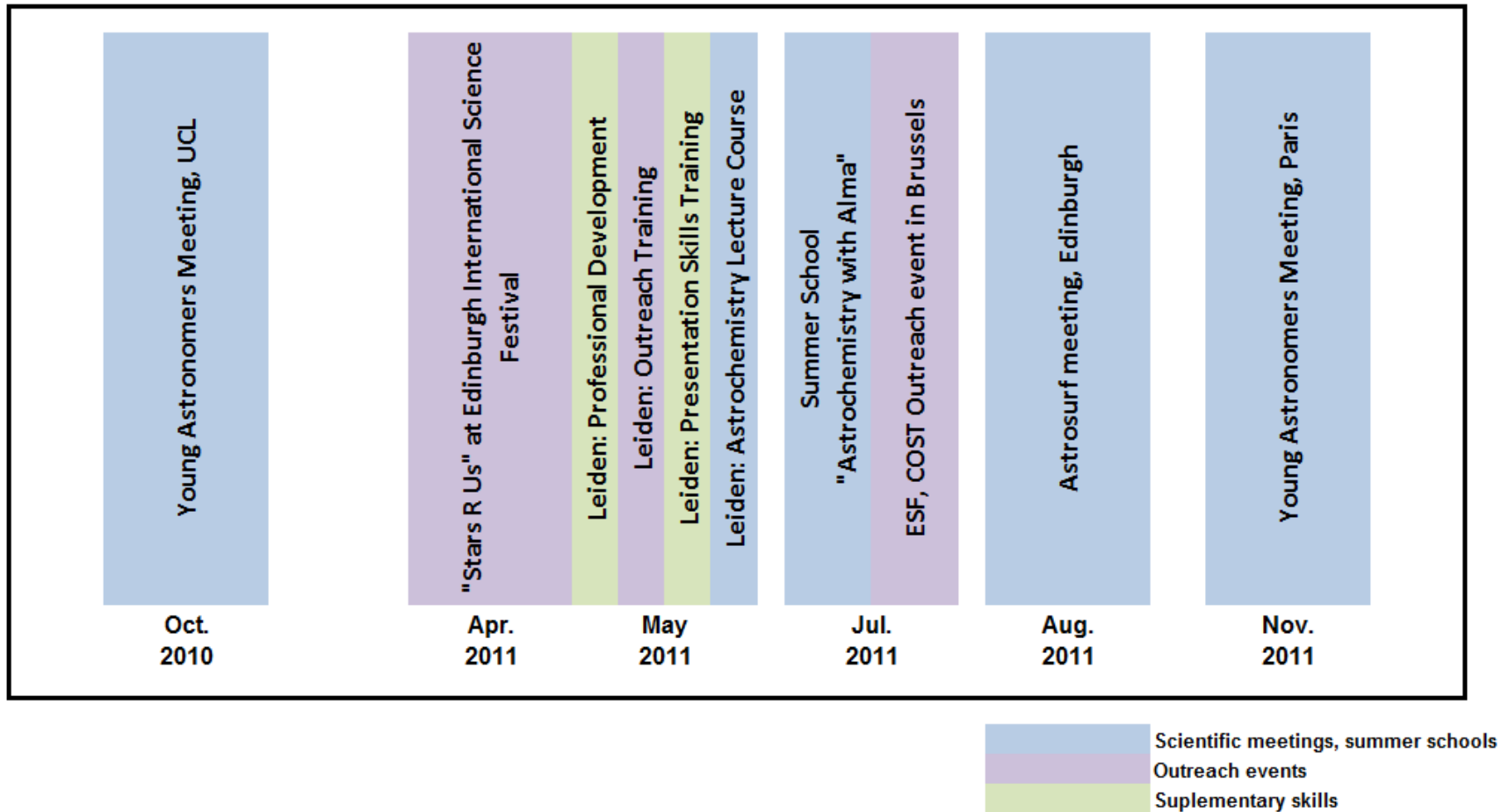
Satisfaction survey



LASSIE Involvement



Training events 2010-2011



LASSIE training event in Leiden



- **Lecture course on Astrochemistry (Prof. dr. E.F. van Dishoeck)**
- **Project and time management (Coenegracht Training)**
- **Presentation skills (Prof. dr. H. Linnartz)**
- **Outreach training (Graphic Science)**

22 LASSIE ER and ESRs participated.

Comments: **It was a great opportunity to learn from Prof. Ewine van Dishoeck.**

It helped to know more about other group members and it created a nice atmosphere among people.

The team work trainings really made the group to know each other more and feel free to express ideas and feelings ...

I got really inspired talking to people working on different parts of the field of astrochemistry and finding a match to work as a group and collaborate.

I come to know about my own strengths and weakness. I find solutions how to improve my weakness in this training.



EUROPEAN ARC
ALMA Regional Centre || Italian

Summerschool:

ASTROCHEMISTRY WITH ALMA

Co-organized by LASSIE PI's, 16 LASSIE ESR and ER attended

What do you think of the topics of the lectures? **20/26 thought the lectures were useful to get a good overview and general information.**

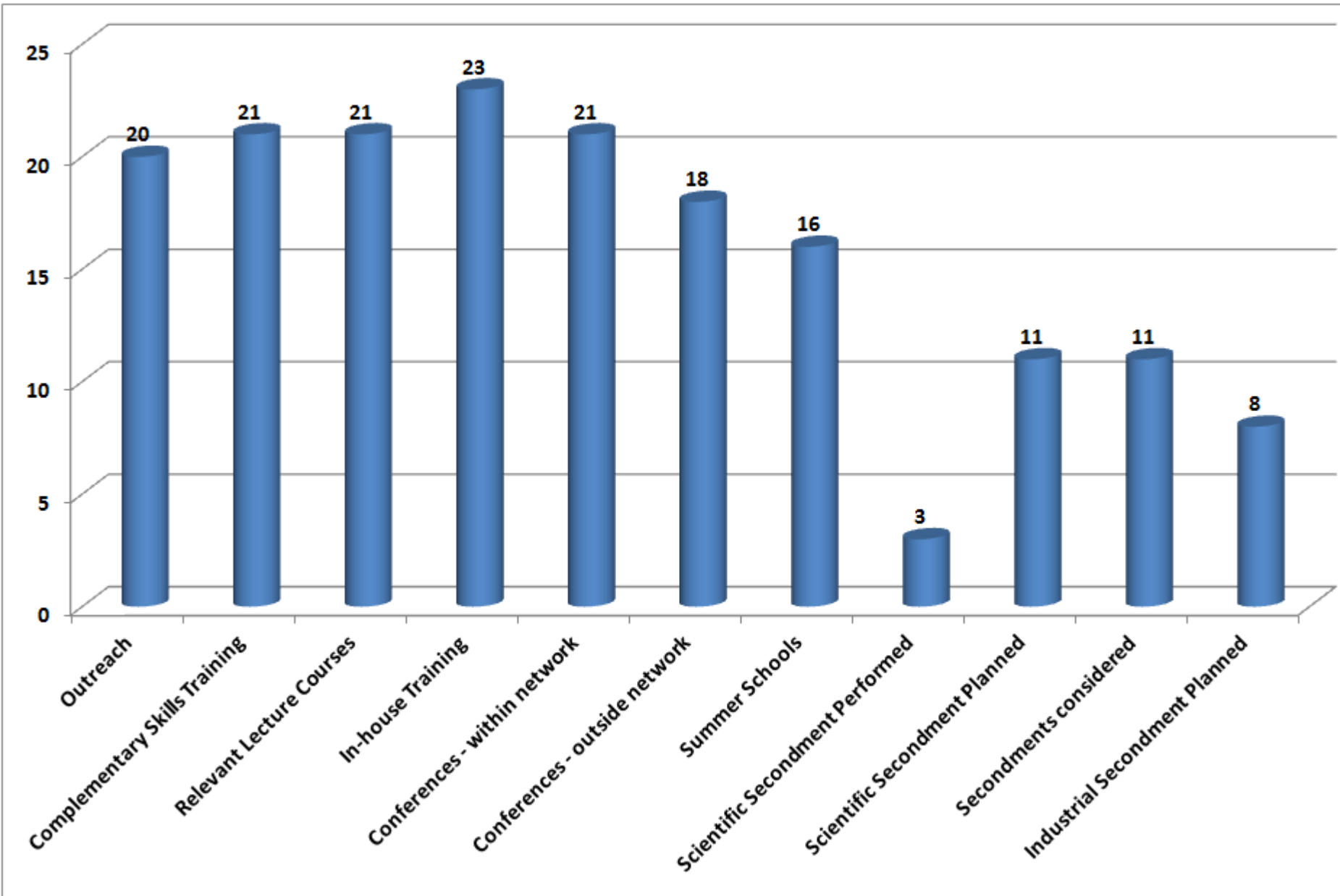
How would you judge the overall quality of the lectures?

Excellent: 9 Good: 14 Fair: 2

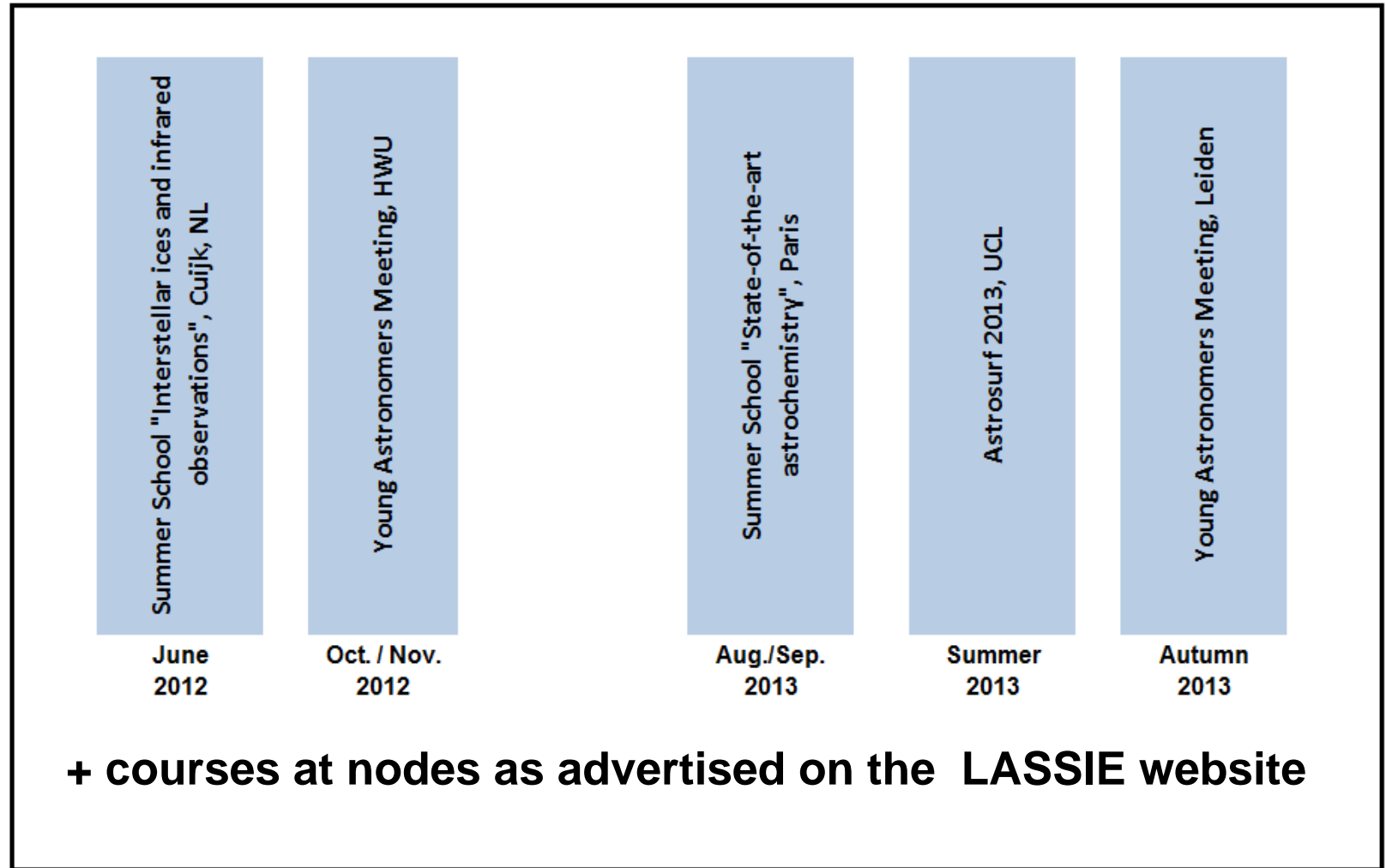
Evaluation of group assignment: **Very positive**



Training status



Training events 2012-2013





LASSIE ER and ESR Facebook group



All Members ▾

Find a member

Q

John Thrower
Research Associate at Aarhus University

Tushar Suhasaria
Works at Westfälische Wilhelms-Universität Münster

Liseth Gavilan
Carleton

Angela Occhiogrosso
London, United Kingdom

Guillem Aumatell
Doktorand at Universität Duisburg-Essen

Steven Cuytle
Ph.D. candidate at the Sackler laboratory for astrophysics at Leiden University

Aleksi Suutarinen

Ewelina Szymanska
The Open University

Irene San Jose
University of La Laguna

Tolou Sabri
Jena

Thanja Lamberts

Binu Kumar
PhD at OU

Tobias Albertsson
PhD at Max Planck Institute for Astronomy

Divya Sharma
Works at Heriot-Watt University

Farahjabeen Islam
University College London

Pulasthika Bethmini
The University of Glasgow

Fabrizio Puletti
PhD at University College London

Alan McLoughlin

Demian Marchione
Works at Heriot-Watt University

Na Nadine

Anna Cle

Gleb Fedoseev
PhD student at Leiden Observatory

Ichraf Oueslati
INSAT

Siyi Feng
Works at Max Planck Institute for Astronomy

Liseth Gavilan
Dust coating in progress.

Like · Comment · Follow post · 20 September at 11:09

Binu Kumar and Aleksi Suutarinen like this.

View all 7 comments

Tolou Sabri we dont believe that even 4 a sec :)
20 September at 11:19 · Like · 2

Pulasthika Bethmini Tolou, the Avatarised version :D
20 September at 17:58 · Like

Write a comment...



Research summary

Harold Linnartz

The topic – The strategy – The
achievements – The impact
The implementation – One pitfall

One topic:

Characterization of solid state astrochemistry through dedicated laboratory experiments.

Five themes:

1. Formation / destruction of interstellar dust
2. Formation of simple molecules
3. Characterization of physical solid state processes at play
4. Characterization of chemical solid state processes at play
5. Astronomical observations

Roughly 1 ER and 5-6 ESRs theme

The Topic

Thermal processing

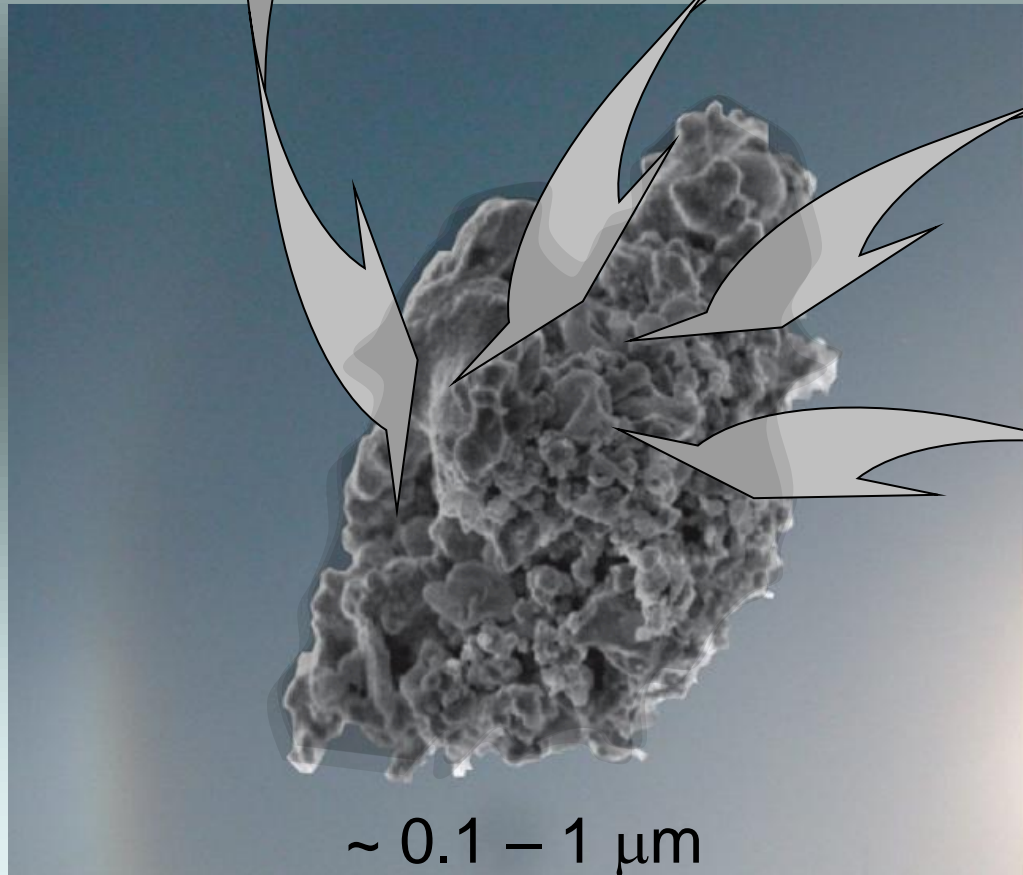
VUV irradiation

Ly- α /
tunable

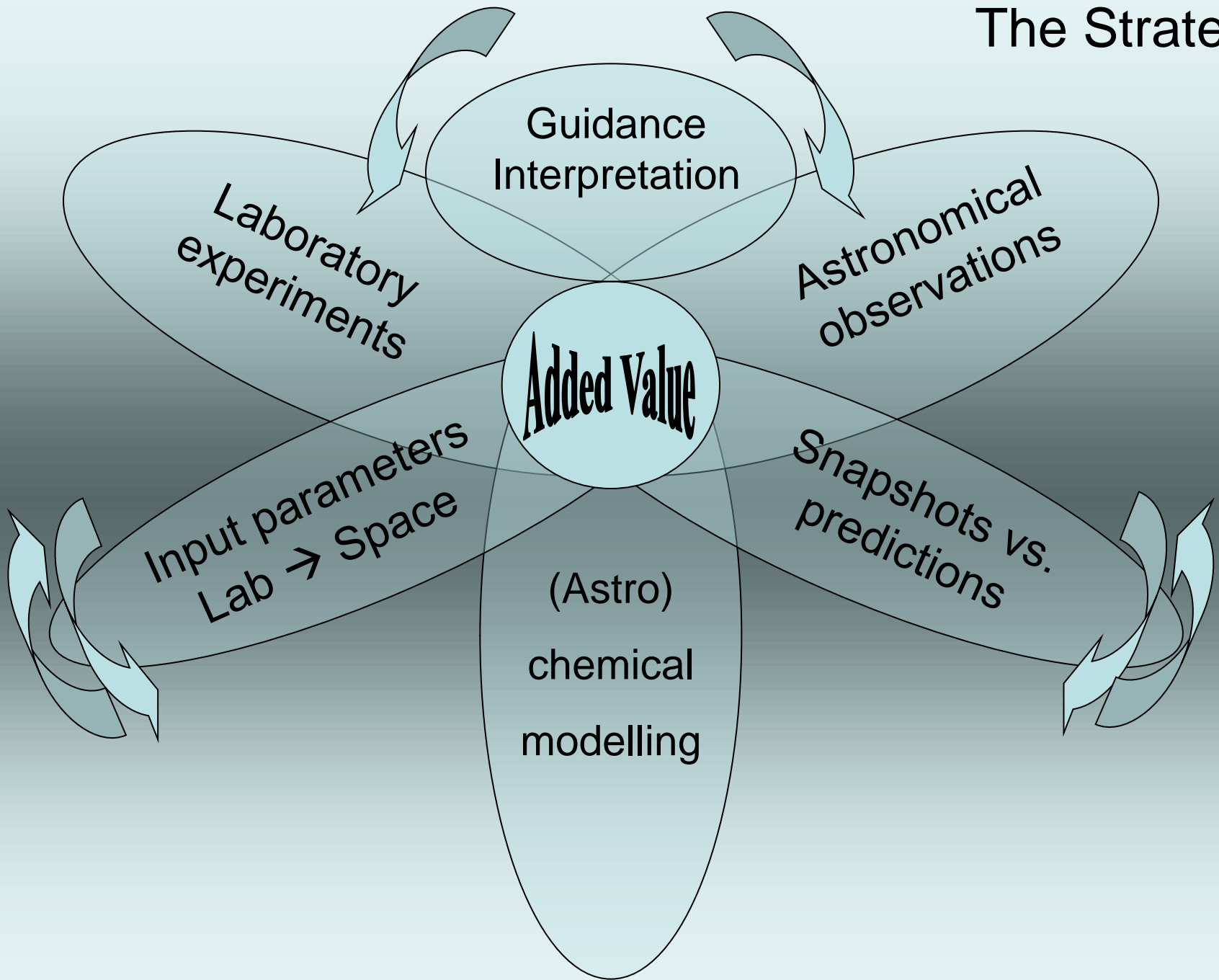
Atom bombardment

H, N, O,
C, S, D

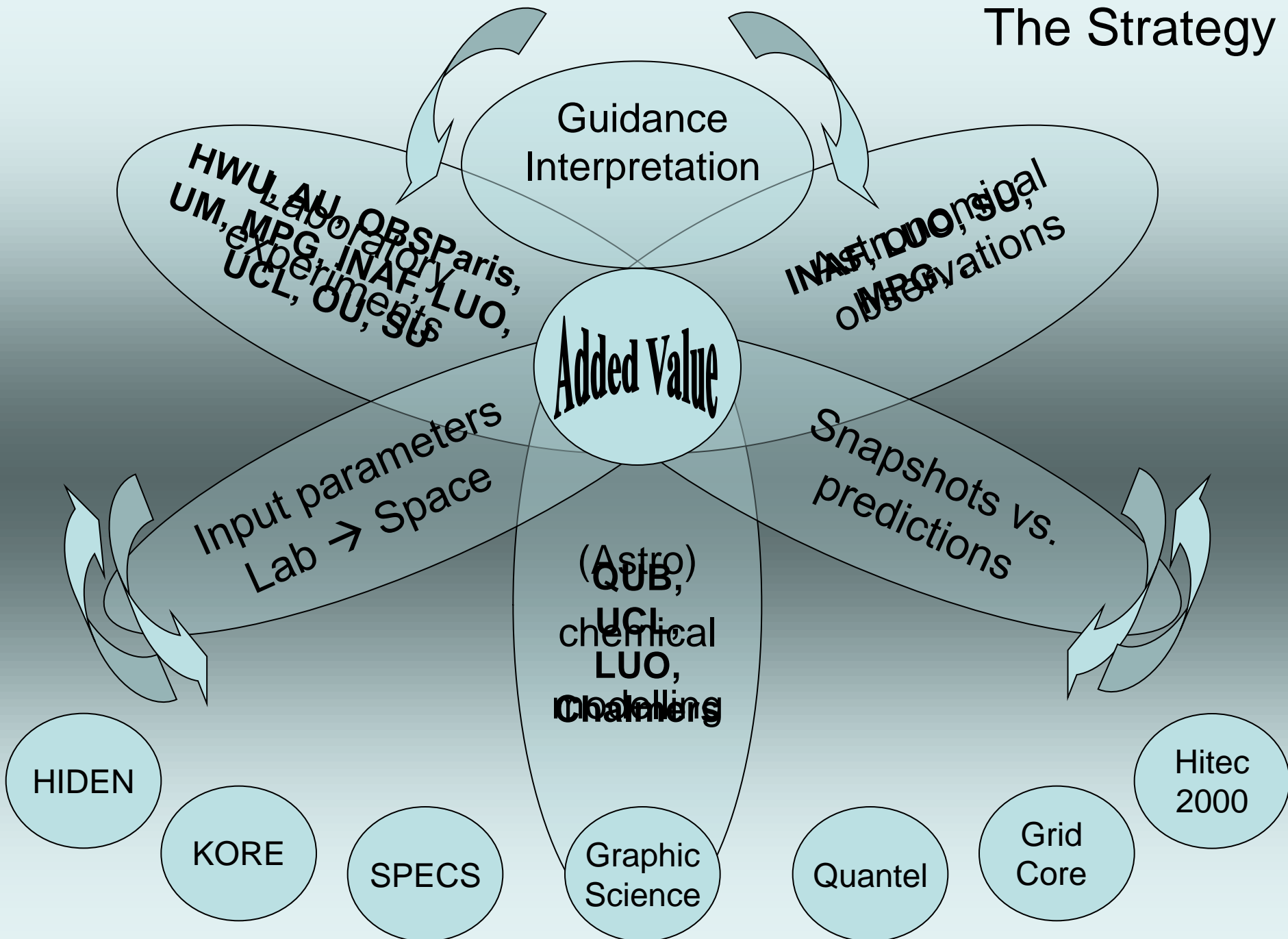
Interactions with e^- and
cosmic rays



The Strategy



The Strategy



The Achievements

Scientific papers (published, accepted, pending):

- ▶ Directly related to LASSIE: ~ 25
- ▶ Directly related to research topic: ~ 70
- ▶ Cited ? 'Yes'
- ▶ Common papers: ~ 10
- ▶ Ratio
 physical chemistry to astronomy : ~ 6 : 4
- ▶ Proceedings : ~ 10
- ▶ Book (Astrobook): Pending
- ▶ Special issue (IAU280): Pending

Scientific meetings (invited) talks/posters on topic:

05.10 PAHs in the Universe, Toulouse (F)

08.10 ECOS 2010, Groningen (NL)

10.10 Chemical Cosmos, Cost meeting, Grenoble (F)

01.11 RAS/RSC ApChem meeting, Eindhoven (NL)

02.11 Workshop planet formation, Goettingen (D)

04.11 European astrochemical networks, Amsterdam (NL)

08.11 Astrosurf 2011, Edingburgh (UK)

09.11 Negative ions in astrochemistry, Gothenburg (S)

09.11 Lorentz Center meeting. Interstellar surfaces, Leiden (NL)

09.11 Laboratory astrochemistry meeting, Paris (F)

10.11 Chemical Cosmos, Cost meeting, Malta

GAS AND GRAIN ASTROCHEMISTRY
ARE GETTING CLOSER AND CLOSER

but

HARD WORK NEEDED
TO IMPLEMENT LABORATORY DATA INTO
ASTROCHEMICAL MODELS

The

implementation

NASA RESEARCH PROGRAMMES

ASTRONET - ETFLA

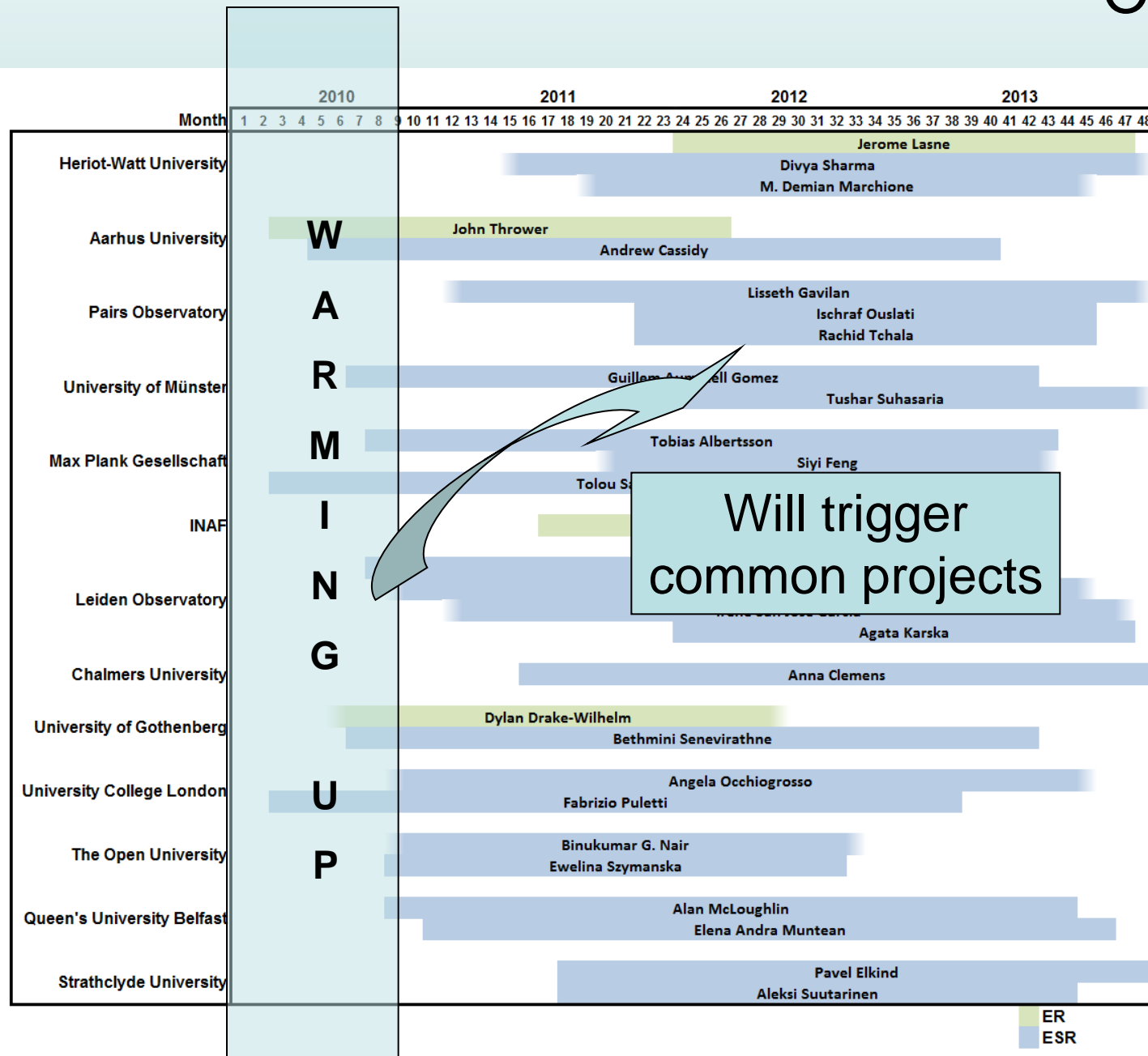
NATIONAL SCIENCE
PROGRAMMES



COST – THE CHEMICAL COSMOS

Astronomical
observational
programs

One pitfall



**‘MAKE SOLID STATE ASTROCHEMISTRY AS
COMMON AS GAS PHASE ASTROCHEMISTRY’**

CHARACTERIZE

DECREASE UNCERTAINTIES

IMPLEMENT

TAKE HOME MESSAGE





OUTREACH
LASSIE-ITN



Mid-Term Review Meeting
14th November 2011



LASSIE Outreach



Aims:

- To publicize the objectives and results of the ITN in both research and training
- To form links with other National and International projects in astronomy/astrochemistry
- To provide opportunities for Lassie ITN ERs/ESRs in outreach and dissemination



LASSIE Outreach



ITN Website

<http://www.u-cergy.fr/LERMA-LAMAP/LASSIE/>

Webmaster: Stéphan DIANA

Stephan.Diana@u-cergy.fr

Lists events and records activity e.g.

The AVS 58th International Symposium & Exhibition will be held Oct. 30 – Nov. 4 2011 at the Nashville Convention Centre.

LASSIE FP7 ITN

Page 1 of 1



LASSIE FP7 ITN LABORATORY ASTROCHEMICAL SURFACE SCIENCE IN EUROPE

Grant Agreement 238258

SEVENTH FRAMEWORK
PROGRAMME INITIAL TRAINING NETWORKS

2011 Young Astronomers' Meeting (YAM)
November 15th 2011, Paris, France

HOME
Beneficiaries
Associated Partners
Network Management
Project Summary
OVERVIEW
Description
Project Overview
Concept and Project Objectives
Scientific and Technological
Objectives
NEWS & MEETINGS
Last update: 04/05/2011
TRAINING
Last update: 10/11/2011
APPOINTED PEOPLE
PUBLICATIONS
Last update: 27/10/2011
LINKS & PRESS COVERAGE
PICTURE GALLERY
Last update: 12/09/2011
INTERNAL COMMUNICATION
ESRs & ERs PERSONAL ACCOUNT
CONTACT
ADMINISTRATOR ACCESS

5735 visits

The European Commission has recently approved under the Framework 7 Programme the ITN-People network LASSIE; a large interdisciplinary training network in the field of SOLID STATE ASTROCHEMISTRY established with the goal of addressing issues of relevance to the chemical evolution of the Universe. From 01/02/2010 and over the next 4 years, a consortium of 13 experimental and theoretical groups with 5 industrial and 1 outreach partners, led by Professor Martin McCoustra (Heriot-Watt University, Edinburgh, UK), will supply training and research opportunities for up to 28 Early Stage Researchers (ESR, PhD students) and 4 Experienced Researchers (ER, Post-doctoral research assistants) at the following host sites:

Prof. M.R.S. McCoustra	Heriot-Watt University, Edinburgh, UK
Dr. L. Hornekaer	Aarhus University, Denmark
Prof. J. L. Lemaire	Paris Observatory, France
Prof. H. Zacharias	University of Münster, Germany
Dr. C. Jäger	Max Plank Gesellschaft, Germany
Dr. M. E. Boshuizen	National Institute for Astrophysics,



LASSIE Outreach



Working with other partners

- **Developing EU community in Astrochemistry**
- **Joint meetings with COST Action CM805 The Chemical Cosmos Working Group 2**
- **Bologna ALMA summer school June 13-17, 2011**
- **AstroSurf Edinburgh August 31 – Sept 2 2011**
- **Malta October 11 – 14 2011**





LASSIE Outreach



Working with partners

- **Developing EU community**

- **Astrochemistry; Molecular Networks connecting the Universe**

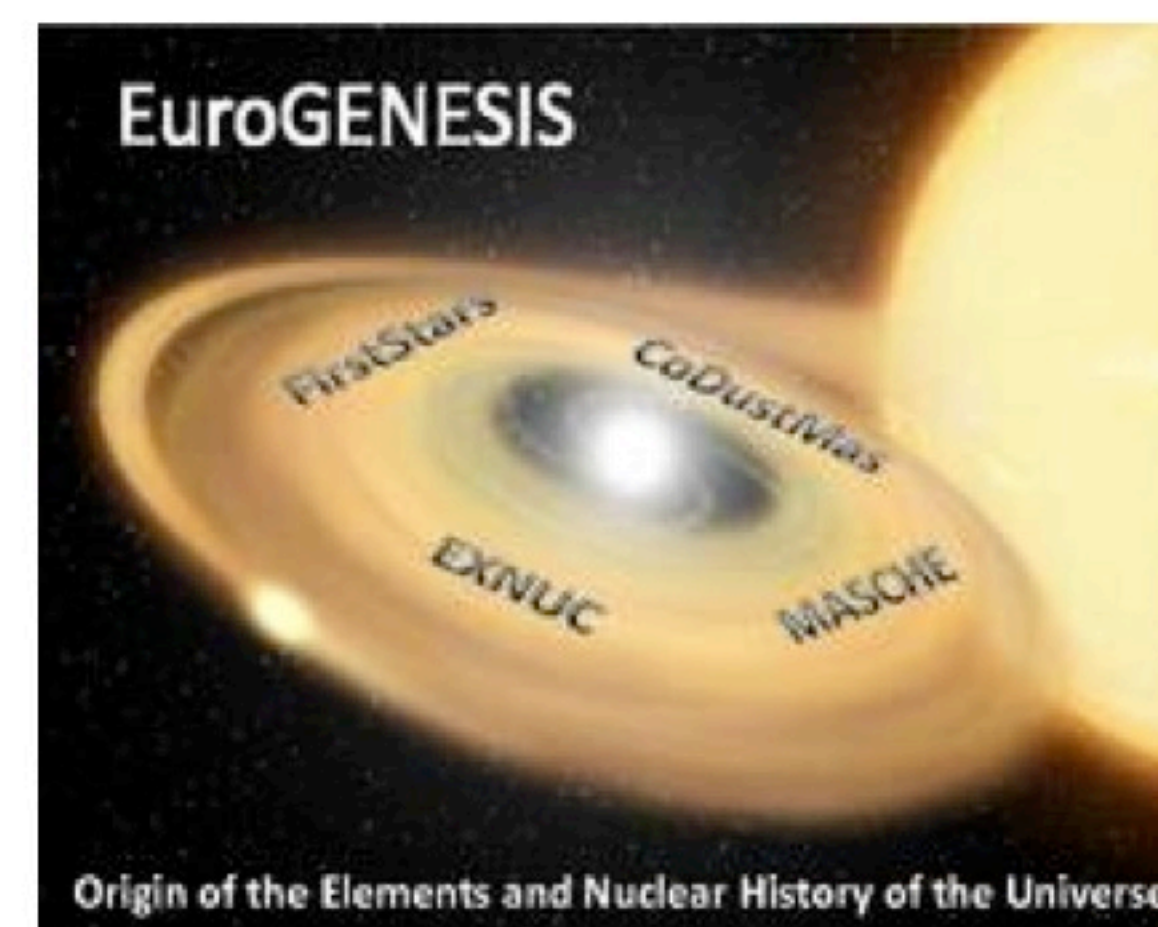
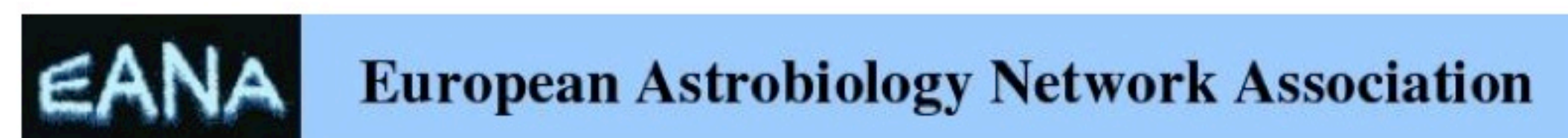
Amsterdam 18-20 April, 2011

- **Europlanet RTN**

- **VAMDC E-infrastructure for databases**

- **Eurogenesis – ESF Collaborative project**

- **EANA European Astrobiology Network Association**





LASSIE Outreach



Outreach Training

- Lassie Training school in Leiden
- Outreach training by partner *Graphic Science*

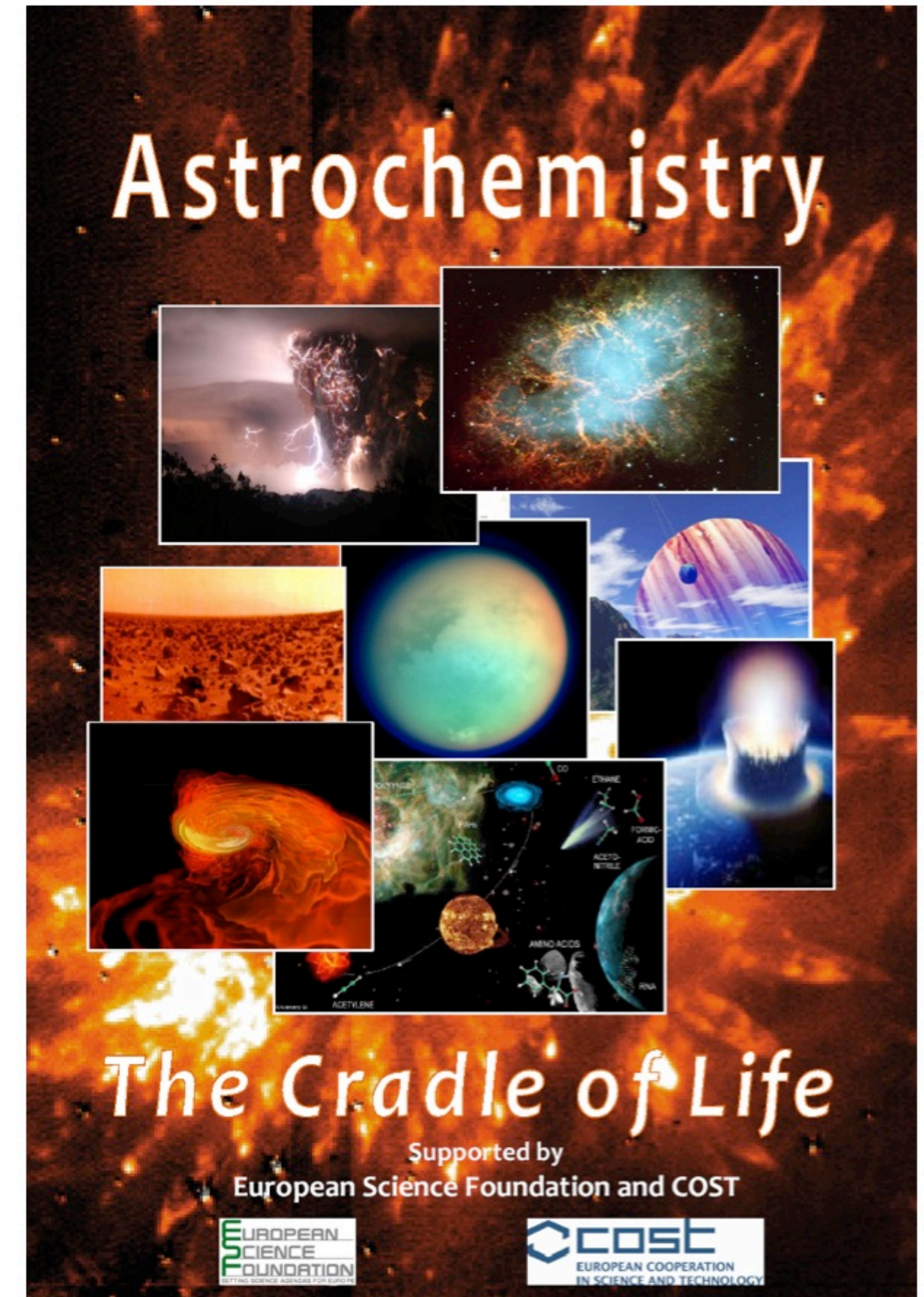




- Astrochemistry – The Cradle of Life
- Exhibition in Museum of Natural Science in Brussels, June 23 – 25, 2011
- Several hundred visitors

Lassie Stars R Us Exhibition

- ESRs presenting





LASSIE Outreach



2012 - 13

Centenary of Discovery of Cosmic Rays

**ESF Roadmap in Astronomy/Astrochemistry
including workshops on**

Public Engagement – (with Europlanet media centre)

Developing coherence between EU programmes

European infrastructure and facilities



LASSIE Outreach



2012 - 13

Joint meetings with

COST CM0805

(SASP January 2012 and COST October, 2012 Catania, Italy)

Astrosurf 2013 (UCL, UK)

Taking Lassie outside EU to IAU and USA