Nordic Research Board - Application for research training course

norden NordForsk

Beslutning: Mottagit: Ref.nr.:

1 Last name	First name	Sex	Title/position
Sollerman	Jesper	Male	Docent/Researcher

University	Academic degree
Copenhagen University	PhD, Docent

Department/institution	Telephone (work)	Mobile
Danish Dark Universe Centre, Niels Bohr Institute	+46 8 5537 8554	

Department/institution address	Telefax (work)
NBI, Juliane Maries Vej 30	+45 35 32 59 89

Postal code	City	Country	E-mail
2100	Copenhagen	Denmark	Jesper@astro.su.se

2 Title of the project/activity (max 50 characters)
Observational Astrophysics at the Telescope

3 Date of single course (dd.mm.yyyy):	4 Subject area (See last page)
From: 01 07 2006 To: 14 07 2006	Physics

5 Meeting venue	Country
Roque de los Muchachos,La Palma,Canary Isl.	Spain

6 Estimated number of participants	DK	FI	IS	NO	SE	EE	LV	LT	RU	Other inside the EU*	Other outside the EU*	Total	Men	Women
Research students	3	3	1	2	3	1	1	1	1	0	0	16	8	8
Other participants														
Teachers	3	1		1	2							7	5	2

*Other countries

7 Summary. Give a short description of the course´s targets and aims (max. 200 words). Nordic Research Board reserves the right to use parts of or the text in full for information purposes.

The aim of the course is to introduce about 16 Nordic PhD students to observational astrophysics. At La Palma, we will have access to the modern facilities required for the successful execution of this advanced graduate course. The Nordic Optical Telescope (NOT) and the Swedish Solar Telescope (SST) are both up-to-date telescopes.

In the summer 2003 we gave a similar course, which was very appreciated. More than 50 Nordic students applied, and we are confident that now – three years later - it is time for another course.

A series of lectures and hands-on observational projects will provide a broad view of the fields of todays observational astronomy. The projects will guide the students through the different aspects of the professional astronomers work; project planning, application, observation, reduction, analysis and report-writing.
No individual Nordic institute can provide the required facilities present at La Palma. Modern astronomy demand big science and complex equipment, and a serious observational course at PhD-level must be located at a modern telescope.

The Institute for Solar Physics of the Royal Swedish Academy of Sciences has already granted the observing time on the SST, and the NOT council has apporoved time at the NOT. The lecturers are a team of young nordic astronomers, all actively involved in frontline observational astronomy.

8 Amount requested from Nordic Research Board
380 000 **NOK**

The department has accepted to administer the grant according to Nordic Research Board's rules and conditions	**x**
The information about the persons and groups participating in the application is correct. Nordic Research Board may request confirmation (Letters of Intent) from the group leaders or network members.	x

9 Contact persons
(Title, name, university) A short presentation of each contact person must be enclosed (See appendix 18)

	Title	Name	University (or equivalent)
DK		Hans Kjeldsen	Aarhus University
FI	Title	Name	University (or equivalent)
		Vilppu Piirola	Turku Univerity
IS	Title	Name	University (or equivalent)
		Gunnlaugur Björnsson	University of Iceland
NO	Title	Name	University (or equivalent)
		Mats Carlsson	Oslo University
SE	Title	Name	University (or equivalent)
		Claes-Ingvar Björnsson	Stockholm University
EE	Title	Name	University (or equivalent)
LT	Title	Name	University (or equivalent)
LV	Title	Name	University (or equivalent)
RU	Title	Name	University (or equivalent)

10 Course organisers
(Title, name, university etc) A short presentation of each contact person shall be enclosed (See appendix 18)

Title	Name	University
PhD	Jesper Sollerman	NBI, Copenhagen
Title	Name	University
PhD	Göran Östlin	Stockholm University
Title	Name	University
PhD	Johan Fynbo	NBI, Copenhagen
Title	Name	University
PhD	Dan Kiselman	KVA, Stockholm
Title	Name	University
PhD	Anlaug Amanda Djupvik	NOT Scientific Association
Title	Name	University
PhD	Michael Andersen	Astrophysical Institute Potsdam
Title	Name	University
PhD	Heidi Korhonen	Astrophysical Institute Potsdam
Title	Name	University
Title	Name	University
Title	Name	University

11 Other sources of funding

Source	Amount applied for (NOK)	Received (NOK)	Reply pending **(dd.mm.yyyy)**

12 Budget		NordForsks anteckningar
EXPENSES		
a) Refundable from NordForsk		
Travel expenses	143000 NOK	
+ Living expenses (room and board)	179400 NOK	
+ Honoraria	32000 NOK	
+ Administration	15600 NOK	
+ Course material	NOK	
+ Other	15600 NOK	
b) Not refundable from NordForsk		
Overhead	NOK	
+ Other	NOK	
	NOK	
	NOK	
= TOTAL EXPENSES	**380000 NOK**	
INCOME		
+ Requested from NordForsk	380000 NOK	
+ Other financial souces	NOK	
+ Other income	NOK	
+ Own resources	NOK	
= TOTAL INCOME	**380000 NOK**	

13 A five page (maximum) description of the proposed activity, including:

a) The current status of research training in the relevant subject area in the Nordic countries. (Adjacent countries when applicable)

b) The scientific content of the course.

c) The significance of the course for Nordic research training, with particular attention to potential benefits for the Nordic region. (The significance for research training in the adjacent areas when relevant.)

d) How is equal participation and equality of women and men taken into consideration

Description of Activity

We propose to organize a Nordic research course in observational astrophysics, introducing a new generation of young Nordic scientists to the use of front line observational facilities. By locating the course on La Palma, Spain, the availability of the Nordic Optical Telescope (NOT) and the Swedish solar telescope (SST) will allow us to give the participants first hand observational experience with the excellent telescopes available to the professional community.

We plan to invite about 16 fresh PhD-students from the Nordic and Baltic countries to La Palma, with the aim of giving them the crucial observational experience which will allow them to plan an observing programme, apply for observing time in a competitive environment and conduct the observations in a coherent way. The course will last about 12 days during the summer of 2006, and will focus on observing in practice, where the students themselves carry out all the relevant steps in the process; planning, observing, reduction, analysis and reporting. Apart from the activities at the telescopes, we will provide day-time lectures on the relevant topics, for example Telescopes and Instrumentation, Data-reduction techniques and World-wide facilities (e.g., ESO and HST).

We base the content of the course on our experience with a very similar, NORFA-finansed, course in summer 2003. This course had more than 50 applicants out of which only 15 could be selected. The course was a great success in all possible ways, and we believe it is again time for a similar course. More information about the 2003 summer course is available at the extensice course homepage:
http://www.astro.su.se/~jesper/NOTKURS/head.html.
Observational astronomy is certainly a rapidly evolving field where professional training at the undergraduate and graduate level is not feasible at any single university. Instead, major nordic efforts are required to assure the future compatitiveness of nordic astronomers.

The course management is a team of relatively young and very active users of both the NOT but also of the large ESO telescopes and of the HST. All teachers will stay on the island during the entire course period and will not only lecture but also participate in supervising the observational projects.

At this initial stage of the project all organizers/lecturers have been confirmed. The Institute for Solar Physics of the Royal Swedish Academy of Sciences has granted four days of observing time and resources on the SST. The NOT director has decided to support this initiative, and granted six observing nights in the summer 2006 for this course. **[This is to be confirmed!!]**
The granted observing time, as well as resources as support astronomers and cars provided by these sources must be regarded as major co-financing. Stockholm observatory will provide lap tops and computer support for the participants.

Educational status

The current educational status in the Nordic countries regarding observational astrophysics leaves room for improvement. This is simply a consequence of the lack of modern observing facilities within the Nordic countries. Observational techniques are therefore mainly lectured at a theoretical level.
This is unfortunate, as observational astronomy is very much a discipline which hands-on experience and where scientists are in tough competition for observing time. The only efficient way to teach this subject is to be at a real observatory. Few individual Nordic university can provide the needed facility. (Stockholm observatory offers an undergraduate course including a vistit to La Palma, but this is unprecedented at the Nordic universities.)
We therefore propose a Nordic research course on this subject. The ideal location is La Palma, where we will have access to the modern facilities required for an advanced course in observational astrophysics.
Due to the location the successful execution of the course will require extra financial resources, but we see no other way to do this is an efficient way.

We aim to enroll about 16 students from the Nordic and Baltic countries. The students should be in the beginning of their PhD studies with little prior experience of observations with a modern telescope.

We hope in this way to introduce a new and enthusiastic generation of Nordic observers. However, we would also like to offer this opportunity to PhD students who plan to work on more theoretical projects. This may be their only chance to see and understand how observations are obtained. Such an experience is essential for anyone who will use and interpret astronomical data.

Scientific content

The goal of the course is to introduce the students to modern observational techniques. We will provide a set of astrophysically interesting observational projects that the students will be able to carry out in the given amount of time. A clear goal is to increase the interest and competence among Nordic astronomers in this field. We need to encourage the next generation of astronomers to use the facilities becoming available today. Special lectures will be devoted to the observational capabilities at the HST and the new instrumentation coming online at ESO. We want to prepare the students for the use of observational techniques in an international environment.

Working at the telescopes will provide a deepened understanding of observational astronomy. There is simply no substitute for hands-on experience with instrumentation and data. Introduction to data processing will be given. During the lectures we will point out the current developments in observational astrophysics, as well as future directions of this discipline. From the experience gained in the 2003 course, we will optimize the share between student driven research and lectures.

Facilities

The Nordic Optical Telescope (NOT) is a modern 2.56m Alt-Az telescope which has been in operation since 1989. The excellent seeing conditions make the telescope competitive also in the era of 8-meter telescopes. NOT is operated in a modern fashion, and holds modern instrumentation. We plan to use the optical imager and spectrograph ALFOSC as well as the new infrared camera NOTCAM in the observational projects.

The new Swedish 1-meter Solar Telescope (SST) saw first light in March 2002. It replaced the Swedish Vacuum Solar Telescope and is with an obstruction free aperture of 96 cm the largest high-resolution
solar telescope in the world. A major pedagogical advantage with the SST is that the observational set-up is very transparent. The light from the telescope is directed to an optical table, where all the components can be physically moved around. This is really hands-on observing! The SST is equipped with adaptive optics, something that will be of great importance for future telescopes.
All students will be given a thorough demonstration of the solar telescope, and some students may be given the possibility to perform their observational project there.

Nordic significance and benefits

There is currently several large efforts within astrophysics in the Nordic countries. We can mention the Danish Dark Universe Center (DDUCE) supported for 5 years by the Danish National Reserach Foundation. This center will be able to support a significant number of new PhD-students in astronomy the coming years. The research will be largely observational in nature.
Another excellent center is the AlbaNova High energy astrophysics and Cosmology center (HEAC) funded by the Swedish Research Council in 2005.
The main aim of the HEAC will be a research school for PhD-students. The PI of this application, and several of the lecturers are deeply involved in DDUCE and HEAC. The need for a Nordic school in astrophysics have never been higher.

We also note that the Nordic countries already do spend a significant amount of the research budget for giving access to observatories such as the NOT, the ESO telescopes as well as space based observatories such as the HST. It is obvious that such investments must be followed by a proper eductation for the future users of such facilities.

A common Nordic research course on this subject will allow a new generation to be introduced to modern telescopes and observing techniques. This will hopefully increase the number of observational astronomers working in the Nordic countries, but will also make the future astronomers working in other fields aware of the complexity present in observational astronomy. Science only progress by confronting theory with observation.

This kind of course is clearly outside the scope of a single university, and requires the co-operative effort of lecturers and facilities.

Course management

The course leader is Jesper Sollerman who works both at the Danish Dark Universe Center in Copenhagen (NBI) and at Stockholm Observatory.
He has selected a team of six course organizers/lecturers.
This is a group of relatively young and very active users of todays frontline optical telescopes. All lecturers are internationally recognized and although some of them work elsewhere today, they are all originally from the Nordic countries.

We believe it is important to show fresh PhD students that many of the successful VLT/HST users are indeed from the Nordic countries, and hope that the informal meetings will promote future Nordic use of the large optical telescopes around the world. Two of the course leaders are women. We will aim at an equal number of male and female students on the course. This was indeed successfully accomplished in the course given in summer 2003.

Here is a very short presentation of the lecturers,
to briefly highlight their complementary competence.

Michael Andersen
Danish astronomer in Potsdam. Michael is well known as an active telescope user in the hunt for GRB optical counterparts. Worked as a staff astronomer at the NOT. Unique expertise in instrumentation, in particular ALFOSC.

Johan Fynbo
Danish astronomer. Very frequent user of the NOT and of the VLT. Specialized in observational studies of Lyman-Alpha galaxies and of Gamma-Ray Bursts. Lecturer in Copenhagen.

Anlaug Amanda Djupvik
Norwegian astronomer with PhD from Stockholm. Senior staff astronomer at the NOT. She is expert on infrared astronomy and in particular on the NOTCAM instrument.

Dan Kiselman
Research associate at the Institute for Solar Physics of the Royal Swedish Academy of Sciences. Solar telescope expertise.

Heidi Korhonen
Finnish astronomer presently in Potsdam, Germany. Specialized on high resolution spectroscopy using SOFIN. She worked at the NOT as a student in 1998/1999.

Göran Östlin
Astronomer at Stockholm Observatory. Frequent NOT and HST user. Observational studies of blue compact galaxies, and an interest in observational cosmology. Former chairman of NOT OPC and current member of ESO OPC.

Contact persons:

Apart from the organizers mentioned above, the course is managed by the following contact persons. They are more thoroughly presented in the appendices to the application.

Claes-Ingvar Björnsson, Sweden, Director of Stockholm Observatory and Swedish member of the NOT council.

Vilppu Piirola, Finland, Director of the NOT 1995 - 2002

Hans Kjeldsen, Denmark, Lektor at Institut for Fysik og Astronomi, Aarhus Universitet

Gunnlaugur Björnsson, Iceland, Research professor at the University of Iceland and member of the NOT council

Mats Carlsson, Norway, Professor at the Institute of Theoretical Astrophysics.

The course is also supported by the NOT staff and the NOT director as well as by the Institue for Solar Physics at the Royal Swedish Academy of Sciences.

14 The applicant's CV (Maximum two pages)

Curriculum vitae for Jesper Sollerman

1. Personal data:

Date and place of birth 26 July, 1968; Bro, Gotland (Sweden)
Nationality Swedish
Marital status Married
Children 2 Daugthers, born 2001 and 2003

2. Degrees:

2004, Docent in Astronomy (Associate professor), Stockholm University (SU)
2000, PhD in Astronomy, Stockholm Observatory
1994, Degree of Bachelor of Arts in Journalism, SU
1993, Degree of Bachelor of Science, in Physics, Mathematics & Astronomy, SU

3. Education and Employment:

2005- Research Leader at the Danish Dark Universe Centre at Niels Bohr Institute, Copenhagen, Denmark
2001- Research Associate (Forskarassistent) at Stockholm Observatory
2000-2001, Research Fellow at European Southern Observatory (ESO), Munich, Germany
1993-2000, PhD-position at Stockholm Observatory

4. Main areas of interest:

Observational studies of supernovae, supernova remnants and pulsars.
Nucleosynthesis and radioactivity; GRB-SN connection; High-z SN cosmology..

5. Publications:

75 published articles, 40 in international refereed journals. First author on 12 of the refereed articles. More than 600 citations to the refereed articles.

6. Talks and Conferences:

11 Invited astronomy talks in Sweden the last 5 years (Stockholm, Lund, Gothenburg, Luleå). Participated in 14 international conferences the last 10 years.

7. Committees and Expert missions:

Swedish member of the Nordic Optical Telescope Observing Programme Committee.
Member of the ESA XMM-Newton Observing Time Allocation Committee AO-4.
Member of the International Astronomical Union (IAU), commission 47.
Member of the editorial board of Populär Astronomi.

8. Pedagogical mertits:

Lectured classes, 2002+2003+2004, Lecturer, Modern Astronomy, 10 credit points (10 p = 15 ECTS), Stockholm University.
2003, Course leader, Observational Astrophysics at the Telescope, 5p, NORFA Nordic Graduate summer school.
2002, Lecturer, Introduction to Astronomy, 5p, Högskolan Gotland.

Pedagogical studies and projects:
I have taken 6 general pegadogical courses, 4 specific courses on supervision, and one course on Supplemental instruction, a pedagogical project I have conducted at Stockholm university.

Supervision:
Main supervisor of PhD student Natalia Serafimovich. Assistant supervisor of PhD student Anestis Tziamtzis, 2002--. I also actively assisted in the supervision of Alexey Koptsevich (PhD 2002) .

Supervised the Master Thesis of Veronika Flyckt 2001-2002 (20p) and of Jan Lindahl 2002-2004 (40p).

9. Popularization merits:

I have a strong interest for popularizing science and astronomy. In 1994 I obtained a degree in journalism (JMK, Stockholm University), and I have worked as a science writer ever since. I have been published for example in Forskning & Framsteg and in Populär Astronomi, where I am also on the editorial board. I have also given many (>10) of popular talks for the general public, given courses intended for the general public, worked on PR at ESO and at SU, and participated in many programmes on national radio and TV.

15 A list of the applicant´s publications (Maximum 20 titles)

1. J. Sollerman, R. Cumming, & P. Lundqvist, 1998, A very low mass of Nickel-56 in the ejecta of SN 1994W, ApJ, 493, 933

2. J. Sollerman, B. Leibundgut, & J. Spyromilio, 1998, SN 1996N - observations of a Type Ib/c supernova at late times, A&A, 337, 207

3. P. Lundqvist, J. Sollerman, C. Kozma, B. Larsson, J. Spyromilio, A.P.S. Crotts, J. Danziger, & D. Kunze, 1999, ISO SWS/LWS observations of SN 1987A, A&A, 347, 500

4. J. Sollerman, C. Kozma, C. Fransson, B. Leibundgut, P. Lundqvist, F. Ryde, & P. Woudt, 2000, SN 1998bw at Late Phases, ApJ, 537, L127

5. J. Sollerman, P. Lundqvist, D. Lindler, R. Chevalier, C. Fransson, T. Gull, C.S.J. Pun, & G. Sonneborn, 2000, Observations of the Crab nebula and its pulsar in the Far-UV and in the optical, ApJ, 537, 861

6. J. Sollerman, C. Kozma, & P. Lundqvist, 2001, Why did SN 1054 shine at late times?, A&A, 366, 197

7. F. Patat, E. Cappellaro, J. Danziger, P. Mazzali, J. Sollerman, et al. 2001, The metamorphosis of SN 1998bw, ApJ, 555, 900

8. J. Sollerman , S.T. Holland, P. Challis, C. Fransson, P. Garnavich, R. P. Kirshner, C. Kozma, B. Leibundgut, P. Lundqvist, F. Patat, A. V. Filippenko, N. Panagia, & J.C. Wheeler, 2002, SN 1998bw, The Final Phases, A&A, 386, 944

9. J. Sollerman, 2002, Optical and Infrared Observations of Radioactive Elements in Supernovae,New Astronomy Reviews, 46, 493

10. J. Sollerman, 2003, The Crab pulsar and its red knot in the near-infrared, A&A, 406, 639

11. J. L. Tonry, B. P. Schmidt, B. Barris, P. Candia, P. Challis, A. Clocchiatti, A. L. Coil, A. V. Filippenko, P. Garnavich, C. Hogan, S. T. Holland, S. Jha, R. P. Kirshner, K. Krisciunas, B. Leibundgut, W. Li, T. Matheson, M. M. Phillips, A. G. Riess, R. Schommer, J. Sollerman, J. Spyromilio, C. Stubbs, & N. B. Suntzeff, 2003, Cosmological Results from High-z Supernovae, ApJ, 594, 1

12. J. Sollerman, P. Ghavamian, P. Lundqvist, & C. R. Smith, 2003, High Resolution Spectroscopy of Balmer-Dominated Shocks in the RCW 86, Kepler and SN 1006 Supernova Remnants}, A&A, 407, 249

13. J. Hjorth, J. Sollerman, P. Möller, et al. 2003, A very energetic supernova associated with the gamma-ray burst of April 29 2003, 2003, Nature, 423, 847

14. J. P. U. Fynbo, J. Sollerman, J. Hjorth, et al. 2004, On the Afterglow of the X-Ray Flash of July 23 2003: Photometric evidence for an off-axis Gamma-Ray Burst with an associated Supernova?, ApJ, 609, 962

15. N. I. Serafimovich, Yu. A. Shibanov, P. Lundqvist, & J. Sollerman, 2004, The young PSR B0540-69.3 and its synchrotron nebula in the optical and X-rays, A&A, 425, 1041

16. J. Spyromilio, R. Gilmozzi, J. Sollerman, B. Leibundgut, C. Fransson, & J-G. Cuby, 2004, Optical and near infrared observations of SN 1998bu, A&A, 426, 547

17. J. Sollerman, J. Lindahl, C. Kozma, P. Challis, A. V. Filippenko, C. Fransson, P. M. Garnavich, B. Leibundgut, W. Li, P. Lundqvist, P. Milne, J. Spyromilio, & R. P. Kirshner 2004, The late-time light curve of the Type Ia Supernova 2000cx, A&A, 428, 555

18. J. Sollerman, N. Cox, S. Mattila, P. Ehrenfreund, L. Kaper, B. Leibundgut, & P. Lundqvist 2005, Diffuse Interstellar Bands in NGC 1448, A&A, 429, 559

19. T. Matheson, S. Blondin, R. J. Foley, R. Chornock, A. Filippenko, B. Leibundgut, R. C. Smith, J. Sollerman, J. Spyromilio, R. P. Kirshner, et al. 2005, Spectroscopy of High-z Supernovae, accepted by AJ (astro-ph/04110357)

20. J. Sollerman, G. Östlin, J. P. U. Fynbo, et al., 2005, On the nature of three nearby SN/GRB host galaxies, submitted to A&A

16 Detailed course programme

Detailed course programme

We propose to arrange a Nordic research course in observational astrophysics. The location is La Palma, Spain, where we will have access to the Nordic Optical Telescope (NOT) and the Swedish solar telescope (SST).

We will take about 16 new PhD-students from the Nordic countries and adjacent areas to La Palma to let them experience how to use state of the art telescopes for real observations. The course will be 12 days long in the summer of 2006, and will center on practical observing exercises where the students themselves carry out all the relevant steps in the process; planning, observing, reduction, analysis and reporting. Apart from the activities at the telescopes, we will provide day-time lectures on the relevant topics.

Course description

The course will be structured around real observational projects. The students have spent many years in classrooms, and the unique possibilities of this event is clearly the hands-on experience. We will provide the students with a number of possible projects which they can choose from. For concrete examples, see the programmes for the summer 2003 course on www.astro.su.se/~jesper/NOTKURS/head.html

These will be observational programmes suitable for the NOT or for the SST. The aim is that the students will plan and perform the observations and then reduce and analyze the data, and finally present the results. All projects will aim at astrophysical results, rather than technical aspects of the instrumentation. The projects will be tutored by the lecturers, who will be available at the mountain during the entire course. Of course, we will keep an eye open for interesting new astronomical phenomena, such as supernovae and gamma ray bursts. The lecturers have lots of experience with the follow-up of such events, and this can quickly be implemented in the course. One of the highlights from the 2003 course was the students classification of 3 supernovae that were reported to the International Astronomical Union (IAU Circ., 8164).

In addition to the practical work we will also offer lectures to the students. The subjects are meant to be of relevance for the different projects. We want to present basic facts about telescopes and instrumentation, as well as on image analysis theory and software. We will also overview the current observational facilities available to the Nordic community, with special emphasis on ESO and on the HST. We will not give too many formal lectures. We have experienced that most of the material is more easily communicated inside the projects.

To ensure some background knowledge, the students will be given material to read prior to the course. This is to make the time at the mountain maximally efficient. A short exam will be given early in the course, to make sure that the students have understood the material. This exam will also ensure that the course can be given credits within the graduate study programmes in the Nordic countries. With expect this intensive course to give at least 2 study weeks at the Nordic universities. Many students from the 2003 course were awarded 5 study weeks at their home institutes. Apart from the exam, all students will present their observational project to the rest of the group. At La Palma this will be done in an oral presentation, but the end product will be a fully written scientific report on the observations and their results. The project reports will be published on the web.

Preliminary Schedule

The duration of the course will be about 12 days. The first few days will be devoted to introductionary lectures and project planning. Observations will then be obtained during the next 6 nights and days, and the last days will be needed for reduction, analysis and presentation of the projects.
The schedule will have to be flexible, to adjust to the the actual weather situation. Summertime gives, however, the best chances for clear skies.
The final write-up is expected to take place at the home-institutes. We will require a thorough report, and this will also enforce some long time communication between the students. For an idea of the detailed schedulae for the lectures, we refer the reader to the WWW-page from the course of 2003. This includes a schedulae, but also other relevant information to assess this proposal.

17 Detailed budget

By locating the course on La Palma, Spain, we will have access to the modern facilities required for an advanced course in observational astrophysics. This will make the course somewhat more expensive than average, but is the only way to make such a course. The budget will also be somewhat uncertain since the travel costs to La Palma can vary significantly.

The budget is based on the experience with the similar course in 2003. Then we were rewarded 380.000 NK, but managed to significantly cut the costs and therefore paid back a large fraction of the funding at the end of the course. We propose the same strategy this time, applying for a budget that makes the course feasible - and then try to cut costs. The main reasons for the savings in 2003 where that the students managed to find very cheap tickets – which cannot be guaranteed to happend again. Moreover, participant institutes helped us bare the costs (see below).

The course has already been granted observing time by the council of the Nordic Optical Telescope (NOT). The NOT will not only provide the six requested observing nights, but will also co-finance the course in terms of required technical and other support for the school. In 2003 NOT co-financed some of the NOT students, that were also used as staff for the telescope.
Computer resources and lecture rooms are also provided.
Given an annual budget of approximately 10 million NOK and available Nordic time for observations of about 250 nights per year, it is obvious that 6 nights of observing time represent a significant economical contribution.

Likewise, The Institute for Solar Physics of the Royal Swedish Academy of Sciences has granted four days of observing time and resources on the New Swedish Solar Telescope (SST). This co-financing also includes man-power and computer resources during the entire duration of the school.

Due to the location the successful execution of this kind of course requires financial resources. Such a course is outside the scope of any single Nordic university, and requires the co-operative effort of lecturers and facilities.

We plan to organize the course to fit a two-week charter flight trip from the Nordic countries, to reduce the costs of the travel as much as possible. Fees from Iceland and the Baltic countries may be more expensive.

We apply for travel and lodging of 7 lecturers and 16 students. The extent of the course will be 12 course days (13 lodging nights).

Economics

Travel expenses: airfare 6500 * 22	= 143000 NOK
lodging and board at recidencia, 600*23*13	= 179400
Bus-transport	= 6000
Set-up costs (extra 4 days before course start)	= 9600
Administration (course material, secretariatetc)	= 10000
Honorarium 8*4000	= 32000

Sum: 380000 NOK

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/position
Fynbo	Johan	M	PhD/Lektor

University	Academic
NBI, Copenhagen	
Department/institution	Telephone (work)
Department/institution address	Telefax (work)

Postal code	City	Country	E-mail

Subject area

Brief presentation:

Born August 24, 1971, Vejle, Denmark.
URL: http://www.phys.au.dk/~jfynbo

Degrees and employment

Aug 2004 –	Associate Professor at NBI (Lektor)
Sep 2002 – Jul 2004	Assistant Research Professor ('forskningsadjunkt').
Sep 2000 – Sep 2002	Research fellow at the European Southern Observatory, Garching, Germany.
May 2000 – Aug 2000	Guest researcher at NORDITA and NBIfAFG, Copenhagen.
Apr 2000	Ph.D-degree in Physics from the University of Aarhus.

1998 Cand.scient. (Master's) degree, University of Aarhus.

Research profile:

My research is focused on galaxy formation in the early universe and on the study of the afterglows and host galaxies of Gamma-Ray Bursts. Member of the team building the spectrograph X-shooter for ESOs Very Large Telescope. Principal investigator on about 10 approved observing programmes at the Very Large Telescope and co-investigator on a similar number of programmes.

Publications:

48 international refereed publications (126 in total). Have given talks and presented posters at about a dozen conferences including invited review talks.

Teaching and research training:

Lecturer on the course Introductory Cosmology, spring 2004, and at the NORDITA summerschool in Abisko Sweden, spring 2002. I have co-organized and lectured at the NorFA summerschool on Astrophysical Observations on La Palma in 2003 and attended a course in University teaching, August 2003. Co-supervisor on two completed MSc theses, and currently co-supervisor for one PhD student and two MSc students.

Public outreach:

Have written two papers in the popular science magazine Kvant and been the editor of the column "Fynbos klumme" in the web-page AstroGym (http://astrogym.phys.au.dk) for 6 years. I have contributed to four pressreleases. Have participated in the TV programme ‘Viden Om’.

Scientific Leadership and research management:

Serve as referee for Astronomy & Astrophysics and the Astrophysical Journal. Substitute member of the Observing Programme Committee for the Nordic Optical Telescope. Chairman for the Instrument User Group concerning low resolution spectroscopy at the Nordic Optical Telescope.

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/position
Andersen	Michael	M	Staff scientist

University	Academic
Astrophysikalisches Institut Potsdam	PhD

Department/institution	Telephone (work)
AIP	+49 331 7499 252

Department/institution address	Telefax (work)
An der Sternwarte 16	+49 331 7499 200

Postal code	City	Country	E-mail
D-14482	Potsdam	Germany	mandersen@aip.de

Subject area

Brief presentation:

Degrees and employment:

July 2002 - Staff Scientist,
Astrophysikalisches Institut Potsdam
October 2002 Ph.D. in astronomy, University of Oulu, Finland
September 1999 - June 2002 Research Assistant & University of Oulu, Finland
May 1997 - August 1999 Support astronomer & Nordic Optical Telescope
May 1994 - April 1997 Carlsberg fellow
November 1992 - April 1994 Research Assistant & University of Copenhagen
November 1992 Cand.scient. (Master's) degree, Univ. Copenhagen.

Research profile:

My research has most recently been focussed on the photometric and spectroscopicstudy of Gamma-ray burst afterglows and has earlier also worked on stellar photometry. I am now mostly developing instrumentation for large telescopes. I am a member of the team building X-shooter for the VLT, the idea of which largely emerged from my PhD work.

Publications:

55 international refereed publications (in total 155). Have given talks and presented posters at about a dozen of international meetings.

Teaching and research training:

Has taught in public youth school (Ungdomsskole) from 1983-1992 and at 'Folkeuniversitetet' in Copenhagen 1989-1993. Course in astrophysical observing techniques, second level (U. Copenhagen). Supervising three M.Sc thesis students in data reduction in the period 1994-1998. Course in CCD photometry (Univ. Oulu). PhD supervisor in a Phd on Gamma-ray bursts since 2003.

Public Outreach:

Have written papers in 'Astronomisk tidsskrift', 'Gamma' and 'Kvant'.
Have contributed to three press releases.
Scientific leadership and research management:
Is a of the X-shooter consortium science team,
served as a member of an international review panel,
is project manager/instrument scientist on the 'PEPSI' instrument,
to be installed at the Large Binocular Telescope (the world's largest telescope on a single mount).

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/position
Djupvik			

University	Academic
Department/institution	Telephone (work)
Department/institution address	Telefax (work)

Postal code	City	Country	E-mail

Subject area

Brief presentation:

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Kiselman	Dan	M	Researcher

University	Academic
Royal Swedish Academy	PhD

Department/institution	Telephone (work)
Dep. Of Astronomy	+46 8 5537 8531

Department/institution address	Telefax (work)
AlbaNova University Center	+46 8 5537 8520

Postal code	City	Country	E-mail
10691	Stockholm	Sweden	Dan@astro.su.se

Subject area

Brief presentation:

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Korhonen	Heidi	F	Researcher

University	Academic
Astrophysikalisches Institut Potsdam (AIP)	PhD
Department/institution	Telephone (work)
AIP	+49-331-7499 279
Department/institution address	Telefax (work)
An der Sternwarte 16	+49-331-7499 200

Postal code	City	Country	E-mail
D-14482	Potsdam	Germany	hkorhonen@aip.de

Subject area

Brief presentation:

Born February 16, 1972, Hamina, Finland
married, two children (born 2001 and 2003)
URL:http://www.aip.de/~hkorhone/

Degrees and employment:

Jul 2002 - Researcher at AIP
Jun 2002 PhD degree in Astronomy, University of Oulu, Finland
Jan 2000 - Jun 2002 Ph.D student in the Finnish graduate school in Astronomy and Space Physics
Jan 1998 - Jun 1999 Student Support Astronomer at Nordic Optical Telescope
May 1997 M.Sc in Astronomy, University of Oulu, Finland

Research interests:

Stellar magnetic activity in the photosphere, chromosphere and corona; Doppler imaging of cool stars; Stellar activity cycles; Flip-flop phenomenon; Stellar differential rotation and meridional flows

Publications:

17 international refereed publications, 40 publications in total. I have participated in about a dozen international conferences where I have presented posters and given talks (including an invited review).

Teaching:

I have approximately 300 hours of teaching experience in undergraduate astronomy in the University of Oulu. I was also the Study Advisor of the Astronomy Division in the University of Oulu for the semester 2000/2001. I have been teaching and supervising exercises in the NorFA Summer School ``Astrophysics of interacting stars'' in Lithuania 2002 and co-organizing the NorFA summerschool on astrophysical observations on La Palma 2003.

Grants:

Recipient of 4 personal research and travel grants from Wihuri and Vaisala foundations (Finland), in total approximately 22500 EUR. PI of the successful German Deutsche Forschungsgemeinschaft (DFG) grant KO2320 ``Flip-flop phenomenon in magnetically active stars'' for hiring a Ph.D student for 2003-2005 (Prof. Strassmeier as a co-applicant).

Public Outreach:

I have been giving general lectures and showing the telescope to visiting groups in the Oulu University. At AIP I have given a radio interview on women in science and talked to high school students about astronomy and what it is like to be an astronomer.

Administrative activities:

Chairman of the Finnish Astronomical Association 2002; Secretary of the Finnish Astronomical Association 1999-2001; Student Representative of the Department Council of Astronomy and Geosciences Department, University of Oulu, 1994-1996; Board member of the Math and Physics Students Association, University of Oulu, 1994-1996.

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Östlin			
University			Academic
Department/institution			Telephone (work)
Department/institution address			Telefax (work)
Postal code / City	Country		E-mail

Subject area

Brief presentation:

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Björnsson	Claes-Ingvar	M	Director

University	Academic
Stockholm University	Docent
Department/institution	Telephone (work)
Department of Astronomy	+46 8 5537 8519
Department/institution address	Telefax (work)
AlbaNova	+46 8 5537 8510

Postal code	City	Country	E-mail
SE-10691	Stockholm	Sweden	Bjornsso@astro.su.se

Subject area

Physics

Brief presentation:

Born 1951
PhD 1981, Lick Observatory, University of California

1981-1983 Reserach Fellow, ESO Garching
1983-1985 Fellow, NORDITA, Copenhagen
1985-1990, Forskarassistent, Stockholm Observatory
1990- Lecturer, Stockholm Observatory

1993-2001 Director of undergraduate studies
2002- Director of Department of Astronomy

Main scientific interest: Gamma-Ray Bursts, Quasars, Blazars, Pulsars

Last five papers in refereed journals:

Björnsson, C.-I. & Fransson, C., 2004, ApJ, 605,823: The X-Ray and Radio Emission from SN 2002ap: The Importance of Compton Scattering

Hagen-Thorn, V. A., Larionova, E. G., Jorstad, S. G., Björnsson, C.-I., & Larionov, V. M. 2002, A&A, 385, 55: Analysis of the long-term polarization behaviour of BL Lac

Björnsson, C.-I., 2001, ApJ, 554, 593: Compton Cooling in the Afterglows of Gamma-Ray Bursts: Application to GRB 980923 and GRB 971214

Björnsson, C.-I. & Aslaksen, T. 2000, ApJ, 533, 787:The Outbursts of Compact Radio Sources: Limitations of Compton Scattering Models and the Possibility of Pitch Angle Scattering

Fransson, C. & Björnsson, C.-I. 1998, ApJ, 509, 861: Radio Emission and Particle Acceleration in SN 1993J

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Björnsson	Gunnlaugur	M	Research Professor

University	Academic
University of Iceland	PhD

Department/institution	Telephone (work)
Science Institute	+354 525 4792

Department/institution address	Telefax (work)
Dunhagi 3	+354 552 8801

Postal code	City	Country	E-mail
107	Reykjavik	Iceland	gulli@raunvis.hi.is

Subject area

Physics

Brief presentation:

Born May 7, 1958
PhD 1990, Department of Astronomy, University of Illinois, Urbana-Champaign

1991-1996 Research Scientist, Science Institute, U of Iceland
1996-2000 Associate Professor, Department of Physics, U of Iceland
1999-2000 Professor, Department of Physics, U of Iceland
2000- Research Professor, Science Institute, U of Iceland

Main scientific interest: Gamma-Ray Bursts, cosmology

Last five papers in refereed journals:

Courty, S., Björnsson, G & Gudmundsson, E.H., 2004, MNRAS, 354, 581
``Host Galaxies of Gamma-Ray Bursts and their Cosmological Evolution"

Jakobsson, P., Hjorth, J., Fynbo, J.P.U. et~al. 2004, A&A, 427, 785
``The line-of-sight towards GRB~030429 at z=2.66: Probing the matter
at stellar, galactic and intergalactic scales"

Björnsson, G., Gudmundsson, E.H. & Jóhannesson, G., 2004, ApJ, 615, L77
``Energy Injection Episodes in Gamma Ray Bursts:
The Light Curve and Polarization Properties of GRB 021004"

Jakobsson, P., Hjorth, J., Fynbo, J.P.U. et~al. 2004, ApJ, 617, L21
``Swift Identification of Dark Gamma-Ray Bursts"

Jaunsen, A.O., Andersen, M.I., Hjorth, J. et~al. 2003, A&A, 402, 125
``A HST study of three very faint GRB host galaxies"

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Carlsson	Mats	M	Prof.

University	Academic
Oslo University	Prof.
Department/institution	Telephone (work)
Institute of Theoretical Astrophysics	(47) 22856536
Department/institution address	Telefax (work)
PO Box 1029 Blindern	(47) 22856505

Postal code	City	Country	E-mail
N-0315	Oslo	Norway	Mats.Carlsson@astro.uio.no

Subject area

Physics

Brief presentation:

Date and Place of Birth: March 17th, 1957; Ljusdal, Sweden.

PhD: 1987, Uppsala Sweden

1989-1991, Researcher in space physics - theoretical studies, NAVF
1991-1992, Førsteamanuensis, Insititute of Theoretical Astrophysics, Oslo
1992-, Professor, Insititute of Theoretical Astrophysics, Oslo.

Since 1987 consultant for "Collaborative Computational Project 7, Analysis of Astronomical Spectra", a project of the Science and Engineering Research Council, UK.

Chairman of the Reference Group for High Performance Computing, Faculty of Mathematics and Natural Sciences, University of Oslo, since 1995.

Chairman of the evaluation of the Program for High Performance Computing of the Norwegian Research Council, 1997.

Member of the program board, Program for High Performance Computing II
of the Norwegian Research Council, 1998-2001

Chairman of the computer time allocation committee of the Norwegian Research Council, 1999-2004

Member of the advisory council for the Center of Information Technology at the University of Oslo, 1998-2001

Member of the Solar System Working Group, ESA, 1999-2002

Member of the Observers Program Committee, Nordic Optical Telescope, 1996-2000, chairman 1998-2000.

Vice Director of the Institute of Theoretical Astrophysics 1993-1997
Director of the Institute of Theoretical Astrophysics 1997-2004

Organisation of International Conferences and Summer Schools:

Oslo Mini-workshop on Chromospheric Dynamics, Oslo 6-8 June 1994.

``Summer School on Radiative Transfer and Radiation Hydrodynamics", Oslo 12-23 June 1995.

Oslo Mini-workshop on Numerical Methods in Astrophysics, Oslo 3-5 June 1998.

``Summer School on Radiative Transfer and Radiation Hydrodynamics", Oslo 1-11 June 1999.

``Summer School on Radiative Transfer and Numerical MHD", Oslo 2-13 June 2003.

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionxx
Kjeldsen	Hans	M	Lektor (Associate Professor)

University	Academic
Aarhus University	PhD

Department/institution	Telephone (work)
Department of Physics and Astronomy	+45 8942 3779

Department/institution address	Telefax (work)
Ny Munkegade, Building 520	+45 8612 0740

Postal code	City	Country	E-mail
DK-8000	Aarhuc C	Denmark	hans@phys.au.dk

Subject area

Physics

Brief presentation:

Place and date of birth: Århus C, Denmark, 12 October 1963.

1992 Ph.D. in Astronomy from Aarhus University, Denmark

1990-1991 Support astronomer at the Nordic Optical Telescope (NOT)
1992-1993 Postdoctoral research Fellow at European Southern Observatory in Garching, Germany
1994 Postdoctoral research scientist (Forskningsadjunkt) at Aarhus University
1995-2002 Research Scientist (Forskningsadjunkt) at Theoretical Astrophysics Center, Aarhus University
2002-2004 Research Scientist (Forskningslektor) at Theoretical Astrophysics Center, Aarhus University
2004- Lektor at Institut for Fysik og Astronomi, Aarhus Universitet

Research interests:

Asteroseismology of main-sequence stars: solar-type stars, roAp stars, delta Scuti stars and beta Cephei stars. Asteroseismology of EC 14026 stars (sdB stars) and red giants. High-precision photometry and spectroscopy. Time series and Fourier analysis using statistical weights. Theoretical models of main-sequence stars. Development of high-precision instrumentation for Space (Rømer and ESA EDDINGTON satellite missions). Astronomy education and public outreach.

18 Presentation of contact persons/course organisers/lecturers (maximum one page per person) (you can copy the page)

Last name	First name	Sex	Title/positionKiselm
Piirola	Vilppu	M	Senior Research Associate

University	Academic
University of Turku, Tuorla Observatory	PhD

Department/institution	Telephone (work)
Tuorla Observatory	+358 2 333 8223

Department/institution address	Telefax (work)
Vaisalantie 20	+358 2 243 3767

Postal code	City	Country	E-mail
FIN-21500	Piikkio	Finland	Vilppu.Piirola@utu.fi

Subject area

Physics

Brief presentation:

1975 PhD

1984-1987 Member, vice-chairman, of the Scientific and Technical Committee (STC) of the Nordic Optical Telescope Scientific Association (NOTSA)
1998-1992 Chairman of NOTSA-STC
1992-1995 Member of the NOTSA Council
1989-1994 Senior research scientist of the Academy of Finland
1994-1995 Senior research scientist, Tuorla Obs.
1995-2002 Director, NOTSA

Major scientific activities:

Development of the Double Image Chopping Photopolarimeter in 1971-1972 at the Observatory of University of Helsinki, and studies of interacting binaries at the Metsahovi Observatory in 1972-1980. The simultaneous five-color version of this instrument was developed in 1977-1978 and has been extensively used during numerous observing trips.

Research topics include strongly interacting magnetic binaries (AM Her type), massive hot binaries (Wolf-Rayet), rapidly rotating giants (FK Comae), young stars (Herbig Ae/Be, T Tau), and star forming regions (bipolar nebulae).

Publications:

More than 129 scientific publications of which 67 have been published in international refereed journals.

N.B.! All information must be included in this document file; appendices are not accepted!

The application must reach Nordic Research Board no later than 16.00 pm on 2 May or the next working day if 2 May is a Sunday or public holiday. (See Nordic Research Board´s guidelines for applicants)

E-mail: soknad@nordforsk.org

Address:
Nordic Research Board (NordForsk)
Holbergs gate1
NO-0166 Oslo
Norway

Subject area

Humanities

- Language, Linguistics
- History
- Folklore, Ethnology
- Music
- History of Art, Architecture
- Theology, Religion
- Literature
- Philosophy
- Archeology
- Film and Theatre
- Culture
- Other and combined subjects

Social Studies

- Law
- Economics
- Economic Geography
- Sociology
- Political Science
- Social Anthropology
- Psychology
- Pedagogy
- Media and Communication
- Other and combined subjects

Mathematics / Natural Science

- Mathematics
- Physics
- Chemistry
- Earth Sciences
- Biology
- Informatics
- Other and combined subjects

Medical subjects

- Medicine (Basic)
- Paraclinical Sciences
- Clinical Medicine
- Clinical Odontology
- Psychiatry
- Social Medicine
- Other and combined subjects

Technology

- Mining, Ore and Oil Technology
- Building and Construction
- Electronic, Electric technologies
- Machine Technology and Mechanics
- Physical Technology
- Shipping Technology
- Materials Technology
- Fishing and Fisheries Technology
- Other related subjects

Agricultural Technology

- Farming and horticulture
- Forestry
- Livestock
- Alimentation