European Research Council
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Call Reference: ERC-2012-ADG_20120216

Project No: 321263

Project Acronym: FISH

Project Full Name: FaInt Supernovae and Hypernovae: Mechanism and Nucleosynthesis

Financial Report

Period covered: from 01/01/2013 **to** 30/06/2014

Period number: 1st

Start date of project: 01/01/2013

Principal Investigator name:
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Report submitted by:
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http://phys-merger.physik.unibas.ch/users/group/

Financial Report

Declaration of honour

In line with the obligations arising from the ERC Grant Agreement I declare on my honour that:

- To my best knowledge, the attached Financial Report represents a realistic estimate of the work carried out for this project and reflects an appropriate use of financial resources for this reporting period;

- The project has achieved most of its objectives and technical goals for the period with relatively minor deviations.

- In case the research project is subject to either: ethics report, new authorization, renewal of opinion(s) from the relevant ethics committee, we confirm that necessary steps have been taken in time to ensure that the relevant documents are sent to ERCEA (ERC-ETHICS-MONITORING@ec.europa.eu)

- The Principal Investigator has agreed to the content of this Report

For the Host Institution:	
Date (dd/mm/yyyy):	

NOTE: This declaration is considered signed upon the electronic submission of the Report via the IT reporting tool.

1. Project Management

• Please indicate the effective start date and describe the start-up phase of the project.

1.1.2013: the first graduate student (Maik Frensel) started immediately with the beginning of the project (working on neutrino transport in/and black hole accretion disks) together with senior personnel PD Matthias Liebendörfer (MHD hydro-dynamics and neutrino transport), PD Thomas Rauscher (nuclear reaction input to nucleosynthesis aspects of faint supernovae and hypernova) as well as PI Friedrich Thielemann.
February 2013: the computer cluster was delivered and installed, three postdoc positions were advertized.
June 2013: postdoc Ruben Cabezon (PhD Barcelona/Spain), working on 3D smooth particle hydrodynamics started on the project.
August 2013: postdocs Takami Kuroda (PhD University of Tokyo), working on general relativistic hydrodynamics, which permits black hole formation, started his contract; also postdoc Kuo-Chuan Pan (PhD University of Illinois), working on 3D hydrodynamics with the FLASH grid-based code, started his contract.
March 2014: graduate student Benjamin Wehmeyer, working on the impact of MHD jets and neutron star merger ejecta on the „chemical evolution“ of galaxies, started his contract.
April 2014: graduate student Oliver Heinimann, working on the equation of state of matter at extreme conditions, related to maximum neutron star masses and the transition to collapse to black holes, started his contract.

• Describe how relations between the Principal Investigator and the Host Institution were managed (i.e. have the provisions of the Supplementary Agreement been respected? What is the kind of administrative support provided by the Host Institution?)

The management between PI and the host institution worked very well. All hurdles of transforming the initial proposal into a project and grant agreement were passed successfully and speedy, such that the project could start on 1 January 2013. There is direct support for these matters and reporting from the central administration, the day to day administration with time sheets, employment contracts etc. was done on a part-time (ERC employment) basis by Francois Erkadoo, the group secretary.

• Please describe how the expenses incurred during the reporting period have developed in comparison with the original budget breakdown as per Annex I of the Grant Agreement and their link to the project. Any over- or under- consumption in comparison to the budget foreseen should be explained. In particular, information is needed on the tasks of the various team

members, the equipment used for the project (even if not charged to the project), details of travel, consumables and/or other direct costs. In case of sub-contracting, please explain the part of the work which was subcontracted and the procedures followed. In case of third parties contributing to the project, please describe the cooperation modalities.

The senior personnel and one graduate student were employed immediately with the start of the grant. The computer cluster arrived one month later. The advertizing of the three postdoc positions and interviews with invitees made it possible to fill the positions after 6 months (1 position) and 7 months (2 positions), the second graduate student started after 14 months. The total savings in postdoc positions by 20 months and graduate student positions by 14 months, made it possible to also hire a third graduate student after 15 months, fitting perfectly into the division of labor envisioned in the grant proposal:
Rauscher & Frensel: nuclear/particle physics input and neutrino transport
Heinimann: equation of state at extreme matter densities and transition neutron star/black hole
Liebendörfer, Cabezon, Kuroda, Pan: multi-D Newtonian and general relativistic hydrodynamics with neutrino transport
Wehmeyer: nucleosynthesis impact of faint supernovae, hypernova, GRB ejecta in galactic „chemical“ evolution.
The collaboration with the Japanese group from Tokyo and Fukuoka (Kotake, Nakamura, Takiwaki) on a large familiy of progenitor stars to be utilized in core collapse models has led to an extended visit of that group in Basel in spring 2014. This visit and participation of group members at workshop/conferences have led to travel reimbursements.

general comment on present and follow-up budgets:

0. PI as envisioned no salary expenses for the PI
1. senior staff: expenses for part-time salary support of senior staff were very close to the initial envisioned budget, we kept the original numbers for the future.
2. postdocs: due to the delayed employment of three postdocs, in total 20 months of postdoc salaries were saved.
3. graduate students: delayed employment of the second graduate student led to 14 months of gradduate student salaries were not used.
4. other: the secretary support for administrating the project is close to the original numbers and is kept on this level for the future.
5. equipment: due to the depreciation schedule of the University only 12 months of depriciation of the computer cluster are in the budget now, the remaining 6 months will be added to the second report.
6. consumables/running costs: opposite to initial statements, the University did not charge any running costs for the computer cluster and no consumables occurred during the first reporting period, this might change in the future and we kept the original numbers for the future.
7. travel: in the original numbers travel of group members and of external visitors were kept in two slots (travel and other). We combine them here in travel and the first period fits almost perfectly the envisioned original numbers. We kept them for the future.
8. Publications: up to now only publications in journals without page charge came out. New ones in journals with page charge are in the pipeline and we added the envisoned budget of the first reporting period to the future
9. other: see 7, here we kept only minor amounts similar to those which occurred in the first reporting period

major adjustments:
due to the savings in 2, 3, and partially 6 during the first reporting period, we added a third graduate student after 15 months, appearing in 3 (graduate students), and postdoc support, appearing in 2 (postdocs) in the final stages of the project. These adjustments stay perfectly in the initial budget.

• In case you intend to propose reallocations between the various budget categories, please explain these and record them in the budget follow-up table, page 5, section 3.2. This will avoid an amendment procedure for budget re-allocation – except if you want to add sub-contracting of tasks or new third parties not yet mentioned in your grant agreement.

The changes outlined above, due to delayed employment starts and other savings, permitted to to add

a third graduate student and further postdoc support in the final stages of the project. This leads to slight modifications within the personnel sub-budgets of postdocs and students. Overall all changes stay within the original total budget.

• In case you are submitting a cost adjustment to previous periods (adjustment Financial Statement to be submitted in FORCE), please clarify to what this adjustment is related to.

none

• Where relevant, please include a summary of the recommendations from audits or technical reviews and indicate how these have been taken into account.

none

• In case the legal status of one of the beneficiaries being a non-profit public body, secondary and higher education establishment, research organisation and SME has changed, please report in accordance with Article II.3.f of the multi-beneficiary Grant Agreement.

none

2. Project Achievements

• Please give a global overview of the project's implementation for the reporting period (no more than ½ page) and elaborate on the problems including delay, cancellation, postponement of activities/work tasks which have incurred and how they have been addressed (if applicable).

The ERC project FISH relates to the explanation of faint supernovae and hypernovae / Gamma-ray bursts. In all cases finally a central black hole emerges (either via core collapse of massive stars or the merger of two neutron stars). The modeling relies on the sub-topics: neutrino transport, realivistic multi-D hydrodynamics, the nuclear equation of state / energy generation of nuclear reactions, and resulting ejecta which contribute in their nucleosynthetic composition to the evolution of galaxies. They are attributed to the following work packages.

WP1. Neutrino transport (in high density proto-neutron stars and accretion disks)
WP2. Fluid instabilities and multi-D magneto-hydrodynamics (in rotating models) based on the IDSA (isotropic diffusion source approximation) and/or VEF (Variable Eddington Factor) approximation with M1 closure
WP3. Improved microscopic input physics and comprehensive nucleosynthesis yield predictions
(a) equation of state of matter at extreme densities and nuclear reaction rates
(b) nucleosynthesis in/of ejecta and impact in galactic evolution

ERC personnel in the WPs are
WP1: M. Frensel (graduate student) and M. Liebendörfer (senior),
WP2: R. Cabezon, K.-C. Pan, T. Kuroda (postdocs) and M. Liebendörfer (senior), WP3: O. Heinimann, B. Wehmeyer (graduate students) and T. Rauscher, F.-K. Thielemann (senior) with some aid of an SNF postdoc (M. Hempel).
M. Frensel is making strong advances on neutrino transport and the treatment of collective neutrino oscillations, a publication on this is in preparation. The work of the senior personnel has resulted in publications on the application of the IDSA to neutrino transport.
R. Cabezon, K.-C. Pan, and T. Kuroda have been a major source of innovation in the project. They (together with senior M. Liebendörfer) form the core team on multi-D hydrodynamics. R. Cabezon introduced a highly sophisticated multi-D smooth particle hydrodynamics (SPH) code (SPHYNX). K.-C. Pan has extended experience in the public-domain grid-based multi-D hydro-code FLASH with radiation transport. T. Kuroda came with a fully general relativistic (GR) multi-D hydrocode. The first step was to implement the ISDA neutrino-transport in FLASH and SPHYNX and perform comparison calculations for core collapse. In addition, comparisons were done to spherically symmetric calculations with our full GR-code AGILE-BOLTZTRAN. This has now been undertaken for calculations involving core collapse up to several 100 ms after bounce at nuclear densities. A comparison paper is in preparation, indicating the most appropriate scheme during different periods of the simulations, in order to devise the best strategy for tackling the core theme of the project, the formation of a black hole, plus modeling of ejecta.
The pre-existence of senior personnel in WP3 (T. Rauscher and F.-K. Thielemann) plus aid by SNF-financed postdoc M. Hempel has led already to quite a number of publications. Graduate student O. Heinimann is now on its way to implement variations of nuclear equations of state to test their impact in core collapse. B. Wehmeyer has implemented an inhomogeneous model for galactic evolution to test the impact of nucleosynthesis ejecta from the above modeled sites (MHD core collapse with rotation, GRBs from neutron star mergers or massive stars) on the early evolution of galaxies.

• All publications, papers, etc, must be uploaded in SESAM via the Publications button available in the Menu in the main page "FP7 Work with a Project". When applicable dissemination activities, patents, awards and research expeditions must be mentioned too in SESAM using the dedicated buttons available in the Menu in the main page "FP7 Work with a Project". Please use the box below to list publications, papers, etc, only if you were not able to use the dedicated buttons available in the Menu.

This is the full list of publications related to the preparation phase (i), published and mentioning ERC support (ii), and submitted (iii, i.e. still in the refereeing process). With the dedicated buttons only those of item (ii) were entered.

In all of the four fields listed above substantial progress has been achieved by the ERC team and also support from the extended Basel group (funded from SNF and other sources). In the following a list of publications is given in these four fields
WP1: publications 1-6
WP2. publications 7-11
WP3a. publications 12-27
WP3b. publications 28-33

These are partially (i) preparatory investigations which do not yet mention ERC funds, but were essential for the beginning of the project, (ii) publications in refereed journals which mention ERC support, and (iiii) submitted publications still on the archive but without DOI number, yet, which mention ERC support in the submitted text. DOI's are listed if existing, yet, otherwise the archive entries are mentioned of submitted but not yet published papers.

(1i) Arcones, A., Thielemann, F.-K.: Neutrino-driven wind simulations and nucleosynthesis of heavy elements, J. Phys. G 40 (2013), 013201
10.1088/0954-3899/40/1/013201

(2i) Berninger, H., Frenod, E., Gander, M., Liebendorfer, M., Michaud, J., Derivation of the Isotropic Diffusion Source Approximation (IDSA) for Supernova Neutrino Transport by Asymptotic Expansions, SIAM J. Math. Anal. 45 (2013), 3229
10.1137/12089243X

(3i) Maruyama, T., Cheoun, M.-K., Hidaka, J., Kajino, T., Kuroda, T., Mathews, G.J. Ryu, C.-Y., Takiwaki, T., Yasutake, N.: Asymmetric Neutrino Production in Strongly Magnetized Proto-Neutron Stars,
2014arXiv1405.7123M

(4iii) Perego, A., Rosswog, S., Cabezon, R., Korobkin, O., Kaeppeli, R., Arcones, A., Liebendoerfer, M.: Neutrino-driven winds from neutron star merger remnants, 2014, (ERC)
2014arXiv1405.6730P

(5iii) Perego, A., Gafton, E., Cabezon, R., Rosswog, S., Liebendoerfer, M.: MODA: a new algorithm to compute optical depths in multi-dimensional hydrodynamic simulations, (ERC)
2014arXiv1403.1297P

(6ii) Yusof, N., Hirschi, R., Meynet, G., Crowther, P.A., Ekström,S., Frischknecht, U., Georgy, C., Abu Kassim, H., Schnurr, O.: Evolution and fate of very massive stars, MNRAS 433 (2013), 1114 (ERC)
10.1093/mnras/stt794

(7i) Garcia-Sens, D., Cabezon, R.M., Arcones, A., Relano, A., Thielemann, F.-K.: High resolution simulations of the head-on collisions of white dwarfs, MNRAS 436 (2013), 3413
10.1093/mnras/stt1821

(8i) Suwa, Y., Takiwaki, T., Kotake, K., Fischer, T., Liebendörfer, M., Sato, K.: On the Importance of the Equation of State for the Neutrino-driven Supernova Explosion Mechanism, Ap. J., 764 (2013), 99
10.1088/0004-637X/764/1/99

(9i) Kuroda, T., Takiwaki, T., Kotake, K.: Gravitational wave signatures from low-mode spiral instabilities in rapidly rotating supernova cores, Phys. Rev. C 89 (2014), 044011
10.1103/PhysRevD.89.044011

(10iii) Pan, K.-C., Ricker, P., Taam, R.: Search for surviving companions in type Ia supernova remnants, (ERC)
2014arXiv1407.6829P

(11iii) Nakamura, K., Takiwaki, T., Kuroda, T., Kotake, K.: Systematic Features of Axisymmetric Neutrino-Driven Core-Collapse Supernova Models in Multiple Progenitors, (ERC) 2014arXiv1406.2415N

(12i) Buyukcizmeci, N., Botvina, A.S., Mishustin, I.N., Ogul, R., Hempel, M., Schaffner-Bielich, J., Thielemann, F.-K., Furusawa, S., Sumiyoshi, K., Yamada, S., Suzuki, H.: A comparative study of statistical models for nuclear equation of state of stellar matter, Nucl. Phys. A 907 (2013), 13 10.1016/j.nuclphysa.2013.03.010

(13i) Claret, A.; Hempel M.: The internal structure of neutron stars and white dwarfs, and the Jacobi virial equation. II, A. & A 552 (2013), A29 10.1051/0004-6361/201220565

(14i) Hempel, M., Dexheimer, V., Schramm, S., Iosilevskiy, I.: Noncongruence of the nuclear liquid-gas and deconfinement phase transitions, Phys. Rev. C 88 (2013), 014906 10.1103/PhysRevC.88.014906

(15i) Kreim, S., Hempel, M., Lunney D., Schaffner-Bielich, Nuclear masses and neutron stars, J., Int. J. Mass Spectrom. 349 (2013), 63 10.1016/j.ijms.2013.02.015

(16i) Steiner, A., Hempel, M., Fischer, T.: Core-collapse Supernova Equations of State Based on Neutron Star Observations, Ap. J. 774 (2013), 17 10.1088/0004-637X/774/1/17

(17i) Fischer, T., Hempel, M., Sagert, I., Suwa, Y., Schaffner-Bielich, J.: Symmetry energy impact in simulations of core-collapse supernovae, Eur. Phys. J. A 50 (2014), 46 10.1140/epja/i2014-14046-5

(18iii) Banik, S., Hempel, M., Bandyopadhyay, D.: New hyperon equations of state for supernovae and neutron stars in density dependent hadron field theory, 2014arXiv1404.6173B

(19i) F. Belloni, et al. (The n.TOF Collaboration): Measurement of the neutron-induced fission cross section of 241Am at the time-of-Flight facility n.TOF, Eur. Phys. J. A 49 (2013), 2 10.1140/epja/i2013-13002-3

(20i) Lederer, C. et al. (The nTOF Collaboration): Neutron capture cross section of unstable 63Ni: implications for stellar nucleosynthesis, Phys. Rev. Lett. 110 (2013), 022501 10.1103/PhysRevLett.110.022501

(21i) Rauscher, T.: Solution to the #-Potential Mystery in the γ-Process and its impact on the Nd/Sm ratio in meteorites, Phys. Rev. Lett. 111 (2013), 061104 10.1103/PhysRevLett.111.061104

(22i) Rauscher, T.: Suppression of Excited-State Contributions to Stellar Reaction Rates, Phys. Rev. C 88 (2013) 035803 10.1103/PhysRevC.88.035803

(23i) Simon, A., A. Spyrou, T. Rauscher, C. Fröhlich, et al., Systematic study of (p, γ) reactions on Ni isotopes, Phys. Rev. C 87 (2013), 055802 10.1103/PhysRevC.87.055802

(24i) Panov, I. V., Korneev, I. Yu., Lutostansky, Y. S., Thielemann, F.-K.: Probabilities of delayed processes for nuclei involved in the r-process, Phys. Atomic Nucl. 76 (2013), 88 10.1134/S1063778813010080

(25i) Kiss, G. G., Szücs, T., Rauscher, T., Török, Zs., Fülöp, Zs., Gyürky, Gy., Halász, Z.; Somorjai, E.: Alpha induced reaction cross section measurements on 162Er for the astrophysical γ process,

Phys. Lett. B 735 (2014), 40 (ERC)
10.1016/j.physletb.2014.06.011

(26ii) Quinn, S. J., Spyrou, A., Bravo, E., Rauscher, T., Simon, A., Battaglia, A., Bowers, M., Bucher, B., Casarella, C., Couder,M. et al. : Measurement of the 58Ni(#,γ)62Zn reaction and its astrophysical impact, Phys. Rev. C 89 (2014), 054611 (ERC)
10.1103/PhysRevC.89.054611

(27ii) Glorius, J., Sonnabend, K., Görres, J., Robertson, D., Knörzer, M., Kontos, A., Rauscher, T., et al.: Experimental cross sections of Ho165(#,n)Tm168 and Er166(#,n)Yb169 for optical potential studies relevant for the astrophysical γ process, Phys. Rev. C 89 (2014) 065808 (ERC)
10.1103/PhysRevC.89.065808

(28i) Panov, I.V., Korneev, I.Y., Martinez-Pinedo, G., Thielemann, F.-K.: Influence of spontaneous fission rates on the yields of superheavy elements in the r-process, Astron. Letters 39 (2013), 150
10.1134/S1063773713030043

(29i) Cescutti G., Chiappini, C. Hirschi R., Meynet G., Frischknecht U.: The s-process in the Galactic halo: the fifth signature of spinstars in the early Universe? A & A 553 (2013), A51 (ERC)
10.1051/0004-6361/201220809

(30i) Avila, J., N., T. R. Ireland, M. Lugaro, F. Gyngard, E. Zinner, S. Cristallo, P. Holden, T. Rauscher: Europium s-process signature at close-to-solar metallicity: Insights from presolar Stardust SiC Grains from AGB stars, Ap. J. Lett. 768 (2013), L18
10.1088/2041-8205/768/1/L18

(31i) Mishenina, T.V., Pignatari, M., Korotin, S.A., Soubiran, C., Charbonnel, C., Thielemann, F.-K., Gorbaneva, T.I., Basak, N.Y.: Abundances of neutron-capture elements in stars of the Galactic disk substructures, A & A 552 (2013), A128
10.1051/0004-6361/201220687

(32ii) Rauscher, T.: Challenges in nucleosynthesis of trans-iron elements, AIP Advances 4 (2014), 041012 (ERC)
10.1063/1.4868239

(33ii) Rosswog, S., Korobkin, O., Arcones, A., Thielemann, F.-K., Piran, T.:
The long-term evolution of neutron star merger remnants - I. The impact of r-process nucleosynthesis, MNRA 439 (2014), 744 (ERC)
10.1093/mnras/stt2502

3. Breakdown of direct costs table and Budget follow-up table

This section is displayed in SESAM only for informative purpose but it has to be prepared using the Adobe form file received from ERCEA via email with the Advance Notice Letter. Once completed, the electronic file must be attached to this Report using the button "attachments" in the web tool SESAM. It can then be printed out and annexed to the paper version of the Report.

4. Financial statements - Model financial statement and summary financial report

For a single beneficiary project the beneficiary should submit the financial statement using the template provided in the application FormC. If special clause 10 applies to your Grant Agreement, please also include a separate financial statement from each third party as well.

For a multi-beneficiary project, the principal beneficiary should submit a separate financial statement from each beneficiary (if Special Clause 10 applies to your Grant Agreement, please include a separate financial statement from each third party as well) together with a summary financial report which consolidates the claimed Community financial contribution of all the beneficiaries in an aggregate form, based on the information provided in the Financial Statement by each beneficiary.

This section is displayed in SESAM only for informative purpose but it should be filled and submitted using the application FormC: https://webgate.ec.europa.eu/FormC.

5. Certificates

Certificates on Financial Statements (CFS) which are due for this period, in accordance with Article II.4.5 of the single beneficiary Grant Agreement and Article II.4.6 for the multi-beneficiary Grant Agreement:

according to the art II.4.5 of the ERC GA a CFS is mandatory for every claim (interim or final) in the form of reimbursement of costs whenever the amount of the EU contribution is equal or superior to EUR 375.000 when cumulated with all previous interim payments (not including the pre-financing) for which a CFS has not been submitted. Once a CFS is submitted, the threshold of EUR 375.000 applies again for subsequent EU contributions but the count starts from 0.

In case of a multi-beneficiary grant agreement (special clause 30) or third party linked to the beneficiary (special clause 10) this threshold is to be applied per beneficiary.

Bear in mind that although the threshold is established on the basis of the EU contribution, the CFS must certify all eligible costs.

When required, a copy of each duly signed certificate on the financial statements should be attached to this Report using the button "attachments" at the bottom of this page (signed originals to be sent in parallel by surface post).

Workforce Table

Note: The following form is not a part of the Periodic Financial Management Report. It is used to collect information which will support the assessment of the impact of ERC funding schemes. This will help the Scientific Council provide evidence on the outcomes of its funding activities and to further develop its funding schemes.

Basic Information					Latest degree earned					Latest postdoc or professional station (if any)				Time in project		Staff member finished the doctorate during the project	
Title/First Name Last Name	Staff category	Gender	Year of Birth	Nationality	Degree	Year awarded	Institution	Country	Subject Area	Activity	Years (from / to)	Institution	Country	Start in Project (month / year)	End of contract in project (month / year)	Month / Year (of last oral examen / defence)	Subject Area
Dr Ruben Cabezon	postdoc	M	1976	ES	PhD	2010	Universitat Politècnica de Catalunya	ES	Computational Astrophysics	postdoc	2010-6/2013	University of Basel	CH	7/2013	12/2016		
Dr Takami Kuroda	postdoc	M		JP	PhD	2011	University of Tokyo	JP	Astronomy	postdoc	2011-7/2013	National Astronomical Observatory of Japan	JP	8/2013	12/2016		
Dr Kuo-Chuan Pan	postdoc	M	1982	TW	PhD	2013	University of Illibnois	US	Astronomy					8/2013	12/2016		
Maik Frensel	PhD student	M	1986	DE	master	2010	University of Basel	CH	physics					1/2013	12/2016		
Benjamin Wehmeyer	PhD student	M	1988	DE	master	2014	University of Basel	CH	physics					3/2014	12/2016		
Oliver Heinimann	PhD student	M	1988	CH	master	2014	University of Basel	CH	physics					4/2014	12/2016		
PD Matthias Liebendörfer	senior	M	1967	CH	PhD	2000	University of Basel	CH	theoretical physics	assistant professor	2005-2011	University of Basel	CH	1/2013	12/2016		
PD Thomas Rauscher	senior	M	1964	AT	PhD	1991	University of Technology Vienna	AT	theoretical nuclear physics	distinguished professor	2012-2012	Hungarian Academy of Sciences	HU	1/2013	12/2016		
Prof Friedrich Thielemann	senior	M	1951	DE	PhD	1980	TU Darmstadt	DE	theoretical physics	asst. & assoc. prof.	1986-1994	Harvard University	US	1/2013	12/2016		

Attachments	DPA2196_Breakdown_of_costs_P1fkt.pdf
Project No.:	321263
Project acronym:	FISH
Project title:	FaInt Supernovae and Hypernovae: Mechanism and Nucleosynthesis
Project starting date:	01/01/2013
Project duration:	48
Principal Investigator name:	Prof. Friedrich-Karl Wilhelm Thielemann
Report submitted by:	UNIVERSITAET BASEL
Date:	