SIMULA RESEARCH LABORATORY
ANNUAL REPORT | 2012

[simula . research laboratory]

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Professor Aslak Tveito
Managing Director

GROWING UP

By: Professor Aslak Tveito, Managing Director
   Professor Are Magnus Bruaset, Director of Research

Born in 2001, Simula is about to leave childhood, a period of life in which we have been carefully looked after. Through processes organised by the Research Council of Norway, international experts have examined and weighed up our research many times over. First, it was the 2001 national evaluation of research in information and communications technology (ICT) that provided the baseline view of our scientific quality. Then, the two Simula-specific evaluations in 2004 and 2009 went deeper, both concluding that substantial progress towards excellence had been made within all research areas. In particular, the 2009 report stated that our research in Communication Systems was "very good", while Software Engineering and Scientific Computing were respectively graded "excellent" and "excellent in every aspect". Finally, the most recent review, the 2012 national evaluation of research in ICT, repeated these grades, thereby ranking Simula as the institution with the highest average score.

Independent evaluation states Simula's international leadership

In the 2012 review,[1] the scientific quality of 62 research groups from 13 Norwegian institutions was scored on a scale from 1 to 5. Of these groups, only five were awarded the highest score for demonstrating "international leadership, visibility, and vision". Two of these groups are at Simula, two are at the University of Bergen, and one is at the Norwegian University of Science and Technology. With an institutional average score of 4.67, Simula is in the very lead, with a significant margin above the national average of 3.38.

In its assessment, the evaluation committee stated that: *Simula has, by most measures, been a substantial success and lead to the creation of a center of international visibility. Many of the research activities provide international leadership and Simula is a substantial resource for research and education in ICT.*

The committee also observed: *The connections to industry are strong and provide examples for other universities and research institutes on how to establish such connections without impacting the depth of the research.*

Simula continuously strive for quality, relevance, and impact

The recommendations stated in recent evaluations have fuelled discussions on how Simula should conduct its research, education, and innovation during the next decade. The results of these discussions are summarised in the document "Simula Research Laboratory Strategy 2013–2022",[2] which was approved by the Board of Directors in March 2013.

To ensure relevance and to build impact, Simula will work closely with problem owners in research, industry, business, and society at large. We aim to strengthen our position in the international research community by improving the volume, quality, and impact of our scientific output. At the same time, we will also strive to improve our visibility and our research communication to the general public.

Our research, focused on solving important current and future challenges, will be concentrated within the three existing research areas. In addition, we expect to expand into related application domains. Simula and the University of Bergen recently signed a four-year collaboration agreement in which the partners commit themselves to developing a strong international research group in cyber security. This initiative is a direct consequence of the 2012 national evaluation, which pointed out this research area as a national weakness.

Our research will continue to be supported by high-quality education. The educational efforts will address increased numbers of master's and PhD students, balanced with the postdoctoral training of especially talented candidates. Degree-awarding training will be provided in close collaboration with leading universities in Norway and abroad.

Research results showing potential for commercialisation will be subject to dedicated screening and evaluation, possibly leading to patents, licensing, commercial spin-off companies, and industrial collaboration.

The new kid on the block is growing into a teenager.

Professor Are Magnus Bruaset
Director of Research

REPORT OF THE BOARD OF DIRECTORS

Simula Research Laboratory AS is part of the Simula Group and performs fundamental long-term research on selected aspects of software and communication technologies, with the aim of contributing to creativity and innovation in business.

In its 11th operating year, Simula Research Laboratory AS and Simula Group achieved a turnover of NOK 106.7 million and NOK 134.1 million, and net profits of NOK 2.2 million and NOK 8.6 million, respectively.

Administration and Organisation
Simula is organised as a limited company under the ownership of the Norwegian Ministry of Education and Research. The company combines academic traditions with recognised business management models.

Simula Research Laboratory AS (Simula) is the parent company of Kalkulo AS, Simula Innovation AS and Simula School of Research and Innovation AS. Kalkulo and Simula Innovation are wholly-owned subsidiaries, while Simula School of Research and Innovation is owned by Simula (56%), Statoil (21%), the municipality of Bærum (14%), Telenor (7%), the Norwegian Computing Center (1%), and Sintef (1%).

The parent company and its three subsidiaries cooperate closely, and are located at IT Fornebu, in the municipality of Bærum.

Activities and Output
Simula conducts fundamental long-term research on communication in computer and mobile networks, scientific calculations, and methods for developing and testing extensive software systems. Our research focuses on fundamental challenges that combine technological development with practical value for industry and society as a whole.

Simula's research is published in international scientific journals and by leading technical publishing companies. In 2012, Simula's research featured in 62 articles in international journals, 3 books, 27 chapters in books and 71 peer reviewed conference articles.

Over the course of 2012, Simula's scientific staff supervised 14 doctoral candidates and 22 master's students to the successful completion of their degrees.

The University of Oslo is an important partner and awarded most of these degrees.

Simula is involved in three EU projects, of which one commenced and one concluded in 2012. Revenues from these projects in 2012 amounted to NOK 3.3 million. Simula is the coordinator for the project, Reducing Internet Transport Latency (RITE). The consortium consists of British Telecom, the University of Aberdeen, Alcatel-Lucent, Institut Mines-Telecom/ Telecom Bretagne, Karlstad University and the University of Oslo.

Personnel
At the end of 2012, Simula Group had a total of 122 employees, 103 full-time and 19 part-time. Of these, 99 were men and 23 were women, with 60 Norwegians and 62 foreign nationals. 49 people were employed as research fellows, with 19 post-doctoral positions and 30 PhD students.

At the end of 2012, Simula Research Laboratory had a total of 35 employees, 21 full-time and 14 part-time. Of these, 31 were men and 4 were women, with 26 Norwegians and 9 foreign nationals.

Health Safety and Environment (HSE)
The board aims to continue its focus on long-term HSE work. Absence due to illness was under 2% in 2012, which is below average compared with similar companies. The Group will be working actively to keep sick leave at continued low levels. There were no reports of occupational diseases or accidents during the year. HSE incidents are now reported at each Board meeting.

Simula's business activities do not pollute the external environment.

In connection with the outsourcing of operational services, Simula has focused on improving data security. This work will continue in 2013.

Equal Opportunity and Integration
Simula's Board has adopted an ambitious action plan, with the goal of increasing the proportion of female employees in scientific positions to 25% by 2015. This percentage was 22% in 2012, compared with 19% in both 2011 and 2010. Within the various job categories, we see that the proportion of female researchers in permanent positions has increased from 0 in 2010 to 13% in 2012. Among the PhD students and postdoctoral fellows, the share is 27% and 26%, respectively.

Simula's management is comprised of 40% women.

Simula will continue to work actively and systematically to improve the gender balance within the organisation. To meet our target of 25% women in scientific positions by 2015, we will continue our focus on initiatives for both recruiting new and talented female candidates, and developing and adapting work situations for qualified women already employed by Simula.

The Group is also working to promote the objectives of the Anti-Discrimination Act, to promote equality, ensure equal opportunities and rights and to prevent discrimination in the workplace. There are 30 different nationalities represented in Simula Group. Over 50% of the Group's employees come from outside Norway. Simula offers courses in Norwegian, organises social events and provides assistance with regard to visas, taxes, living accommodations and other administrative issues.

Ethics

Simula follows ethical guidelines as described in "The Simula Code of Ethics", which also comprises research ethics, based on the fact that Simula is an institution dedicated to truth and the pursuit of truth. The institution's reputation is based on others being able to trust that its research results are correct and have been produced in a verifiable and ethically responsible manner. For questions regarding research ethics, Simula's researchers shall adhere to the guidelines set by the National Committee for Research Ethics in Science and Technology (NENT). In addition, all employees must follow Simula's internal guidelines for scientific publishing, which are based on the Vancouver Convention.

Risk

The Board considers financial risk, credit risk and liquidity risk to be low, and thus concludes that risks to the organisation are generally low.

Positive Economic Growth

Simula Group saw an increase in both personnel and capacity in 2012. In its 11th operating year, the group had a turnover of NOK 134.1 million, an increase of 11% from the previous year. Operating results were NOK 9.7 million, with a net profit of NOK 8.6 million.

Simula Research Laboratory AS had a total operating revenue of NOK 106.7 million in 2012. External project funding was a total of NOK 51.2 million. The net profit for 2012 was NOK 2.2 million, which was transferred to other equity. Equity in Simula Research Laboratory AS is NOK 13.9 million, corresponding to an equity ratio of 31.6% of total assets.

Simula School of Research and Innovation AS had a total operating revenue of NOK 41.3 million in 2012, with a net profit of NOK 3.6 million.

Simula Innovation AS had a total operating revenue of NOK 7.7 million, with a net profit of NOK 717.000 in 2012.

In 2012, Kalkulo's total sales revenues amounted to NOK 14 million, with a net profit of NOK 2.1 million.

Future Development

Our main government grant has not been adjusted for inflation. It is therefore very encouraging for the future of Simula's finances that, at the close of 2011, the Ministry of Education and Research confirmed that the Ministry's share of Simula's grant (NOK 29 million) will be adjusted for inflation as of 2013.

The board believes that our annual accounts provide a correct picture of Simula Research Laboratory AS and the Group. The Group is in a healthy economic and financial position. In accordance with chapter 3, paragraph 3a of the Norwegian Accounting Act, it is confirmed that conditions for continuing operations exist, and the annual accounts have been prepared accordingly.

The Board

In 2012, Simula's board had four meetings. The employee-elected board member, Erik Heggem, stepped down from the board in 2012. The board would like to thank him for his commitment and inputs to the board. Hege Johnsrud joined the board as the new employee-elected board member. Cooperation between the board and management is good. The board would like to thank all employees for their strong contributions throughout the year.

From left:

Erik Heggem, Ola Skavhaug, Gunnar Hartvigsen, Pinar Heggernes, Tormod Hermansen, Ingvild Myhre, Ottar Hovind (administration), Marianne M. Sundet (administration), Ingolf Søreide, Inger Stray Lien, and Mats Lundqvist.

ACCOUNTS

PROFIT & LOSS STATEMENT

2012

2011	2012		Note	2012	2011
	GROUP			**PARENT COMPANY**	
121 083 635	134 080 436	OPERATING REVENUES	6,11	106 701 983	97 377 913
		OPERATING EXPENSES			
75 499 248	85 295 420	Salary and social costs	4,5,11	63 254 487	57 077 092
1 140 386	1 360 261	Depreciation	3	1 151 667	1 049 365
36 585 359	37 727 159	Other operating expenses	5,14,11	40 013 438	35 451 308
113 224 993	124 382 840	TOTAL OPERATING EXPENSES		104 419 602	93 577 765
7 858 642	9 697 596	OPERATING PROFIT		2 282 381	3 800 148
		FINANCIAL ITEMS			
630 332	488 244	Other interest income		377 562	508 250
71 028	101 769	Other financial income		55 903	58 955
14 882	165 597	Other interest expense		155 689	9 455
1 432 413	417 704	Other financial expense		353 860	59 720
-745 935	6 712	NET FINANCIAL ITEMS		-76 084	498 030
7 112 707	9 704 308	PROFIT BEFORE TAXES		2 206 297	4 298 178
723 297	1 113 196	TAXES FOR THE YEAR	13	0	0
6 389 410	8 591 112	NET PROFIT		2 206 297	4 298 178
-589 135	-1 592 839	Minority interests		0	0
5 800 275	6 998 273	Result after minority interest		2 206 297	4 298 178
		TRANSFERS			
5 800 275	6 998 273	Transferred to other equity		2 206 297	4 298 178

The financial statements have been prepared pursuant to the regulations in the Norwegian Accounting Act of 1998. The statements have been drawn up in accordance with Norwegian accounting standards.

2011	2012		Note	2012	2011
	GROUP			PARENT COMPANY	
		FIXED ASSETS			
		Tangible fixed assets			
1 720 780	8 769 050	Furniture, fixtures, equipment	3	8 351 911	1 646 362
1 720 780	8 769 050	Total tangible fixed assets		8 351 911	1 646 362
		Financial fixed assets			
298 232	1 266 046	Investments in shares	12	0	0
0	0	Investments in subsidiaries	10	5 319 700	5 319 700
298 232	1 266 046	Total financial fixed assets		5 319 700	5 319 700
2 019 012	10 035 096	TOTAL FIXED ASSETS		13 671 611	6 966 062
		CURRENT ASSETS			
		Receivables			
13 155 845	12 234 341	Accounts receivable	11	5 152 472	4 223 837
12 250 364	16 956 612	Other receivables	11	11 542 760	9 971 242
25 406 209	29 190 953	Total receivables		16 695 232	14 195 079
28 002 125	28 745 122	Cash and banks	9	13 628 939	18 369 526
53 408 334	57 936 075	TOTAL CURRENT ASSETS		30 324 171	32 564 605
55 427 346	67 971 171	TOTAL ASSETS		43 995 782	39 530 667
		EQUITY			
		Paid-in equity			
1 200 000	1 200 000	Share capital	7,8	1 200 000	1 200 000
1 200 000	1 200 000	Total paid-in capital		1 200 000	1 200 000
		Earned equity			
17 213 498	24 211 770	Other equity	8	12 704 082	10 497 785
2 430 869	4 023 708	Minority interests	8	0	0
19 644 367	28 235 478	Total earned equity		12 704 082	10 497 785
20 844 367	29 435 478	TOTAL EQUITY		13 904 082	11 697 785
		LIABILITIES			
0	4 833 334	Liabilities to credit institutions		4 833 334	0
0	4 833 334	Total liabilities to credit institutions		4 833 334	0
286 719	229 537	Deferred tax	13	0	0
286 719	229 537	Total accruals for liabilities		0	0
286 719	5 062 871	Total long term liabilities		4 833 334	0
		Short term liabilities			
7 252 624	11 798 576	Accounts payable	11	14 052 120	11 692 239
723 345	1 170 378	Tax payable	13		
6 621 582	6 885 818	Other duties payable		2 712 562	2 336 861
19 698 709	13 618 050	Other short term liabilities	11	8 493 684	13 803 782
34 296 260	33 472 822	Total short term liabilities		25 258 366	27 832 882
34 582 979	38 535 693	TOTAL LIABILITIES		30 091 700	27 832 882
55 427 346	67 971 171	TOTAL LIABILITIES AND EQUITY		43 995 782	39 530 667

NOTES TO THE ACCOUNTS

NOTE 1 – ACCOUNTING PRINCIPLES

The financial statements have been prepared pursuant to the regulations in the Norwegian Accounting Act of 1998. The statements have been drawn up in accordance with Norwegian accounting standards.

The main rule for the valuation and classification of assets and liabilities
Assets intended for permanent ownership or use are classified as fixed assets. Other assets are classified as current assets. Receivables to be paid back within one year are always classified as current assets. The same criteria are applied to the classification of short- and long-term liabilities.

Fixed assets are valued at acquisition cost and written down to their fair value, if the fall in value is believed to be permanent. Fixed assets are depreciated over the useful life of the asset. Long-term liabilities are recognised at nominal value on the date the liability was incurred. Long-term liabilities are not revalued to fair value with respect to interest rate fluctuations.

Current assets are valued at cost, or fair value, whichever is the lower. Current liabilities are recognised at their nominal values on the date they were incurred. Current liabilities are not restated to fair values with respect to interest rate fluctuations.

Certain items are valued according to other rules, as explained below.

Foreign currency transactions
Assets and liabilities in foreign currency are translated into Norwegian kroner at the mid-rates quoted by Norway's National Bank on the balance sheet reporting day.

Tangible fixed assets
Tangible fixed assets are generally depreciated over the expected useful life of the asset. Depreciation is generally done on a straight-line basis over the expected useful life of the asset.

Receivables
Accounts receivable and other receivables are recorded at nominal amounts less provisions for anticipated losses from bad debts. Provisions for losses are based on individual assessments of the collectability of each receivable. In addition, if necessary, a general provision is made for anticipated bad debts on other receivables.

Pensions
A straight line earning profile is used to account for pensions and assumptions are made regarding expected salary upon retirement.

Taxes
The company has no tax expenses in the parent company accounts since its activities are not considered taxable.

NOTE 2 – FINANCIAL MARKET RISK

The company has little exposure to financial market risk.

NOTE 3 – FIXED ASSETS

Simula Research Laboratory AS			
	Computer Equipment	**Furniture/Fittings, equipment**	**Total**
Acquisition cost Jan. 1	5.063.641	7.766.935	12.830.576
Acquired in 2012	753.347	8.017.789	8.771.136
Disposed of in 2012	- 742.210	- 223.956	- 966.166
Acquisition cost Dec. 31	**5.074.778**	**15.560.768**	**20.635.546**
Acc. depreciation	4.637.866	7.645.769	12.283.635
Net book value Dec. 31	**436.912**	**7.914.999**	**8.351.911**
Depreciation for the year	349.970	801.707	1.151.677
Depreciation %	20 – 50%	20 – 33%	

Simula Research Laboratory AS – Group			
	Computer Equipment	**Furniture/Fittings equipment**	**Total**
Acquisition cost Jan. 1	5.511.916	7.766.935	13.278.851
Acquired in 2012	1.304.651	8.017.789	9.322.440
Disposed of in 2012	- 742.210	- 223.956	- 966.166
Acquisition cost Dec. 31	**6.074.357**	**15.560.768**	**21.635.125**
Acc. depreciation	5.220.306	7.645.769	12.866.074
Net book value Dec. 31	**854.051**	**7.914.999**	**8.769.050**
Depreciation for the year	558.554	801.707	1.360.261
Depreciation %	20 – 50%	20 – 33%	

NOTE 4 – PENSION COSTS

The Group has a pension plan that covers all employees in the parent company and in the Group. The pension plan provides defined future benefits. Pension benefits depend on the individual employees' number of years of service, salary level upon retirement age, and social security benefits. The collective pension agreement is funded by building up pension funds under the management of the Norwegian Public Service Pension Fund.

The company has taken out an pension insurance for the managing director expensed at **NOK 643.324,-**.

NOTE 5 – COST OF LABOUR, NUMBER OF EMPLOYEES, REMUNERATION, ETC.

Salary and social costs	Simula Research Laboratory AS		Simula Research Laboratory AS Group	
	2011	2012	2011	2012
Salaries	26.129.141	24.011.596	59.071.603	66.621.592
Social security	4.115.926	4.109.722	8.774.493	10.298.899
Pension costs	1.871.239	1.965.334	3.222.163	4.072.991
Other benefits	4.191.332	3.866.343	4.491.441	4.301.938
Contribution to cover cost of labour at SSRI	15.671.656	17.444.982	-	-
Contribution to cover cost of labour at SI	5.097.798	11.856.510	-	-
Total	57.077.092	63.254.487	75.499.248	85.295.420
Average man-years of labour	37	35	99	109

Benefits to top management	Simula Research Laboratory AS	Simula Research Lab AS Konsern
Managing director	1.555.572	-
Other remuneration to managing director	276.568	-
Pension costs to managing director	729.831	-
Board of directors fees	328.125	487.625
Audit fees to Auditor	63.000	143.600
Other fees to Auditor	28.800	49.700

NOTE 6 – OPERATING REVENUE

	Simula Reserach Laboratory AS	Simula Research Lab AS Konsern
Research Funding	50.000.000	56.000.000
Subsidies from the Research Council of Norway and the EU	45.236.533	45.673.533
Services to subsidiaries	5.514.813	-
Other income	5.950.638	32.406.903

NOTE 7 – SHARE CAPITAL AND OWNERSHIP STRUCTURE

The company's share capital consists of 800 shares with a nominal value of NOK 1 500 per share.

The shares are owned by: The Norwegian state/ represented by the Ministry of Research and Education

NOTE 8 – EQUITY

Simula Research Laboratory AS

	Share Capital	Other Equity	Total Equity
Equity at Jan. 1	1.200.000	10.497.785	11.697.785
Profit for the year	-	2.206.297	2.206.297
Equity at Dec. 31	1.200.000	12.704.082	13.904.082

Simula Research Laboratory AS – Group

Share Capital		Other Equity	Minority-interests	Total Equity
Equity at Jan. 1	1.200.000	17.213.498	2.430.869	20.844.367
Profit for the year	-	6.998.272	1.592.839	8.591.112
Equity at Dec. 31	1.200.000	24.211.770	4.023.708	29.435.478

NOTE 9 – BANK DEPOSITS

The company had withheld funds of NOK 2 649 431 in connection with rent of office space and NOK 1 527 339 in withholding taxes. The Group's withheld funds for withholding tax is NOK 3 099 891.

NOTE 10 – SUBSIDIARIES

	Office Location	Ownership Dec. 31	Net book value	Company at Dec. 31	Company result for 2012
Simula Innovation AS	Fornebu	100 %	4.356.300	5.317.534	716.772
Kalkulo AS	Fornebu	100 %	406.000	6.441.531	2.069.220
Simula School of Research and Innov.	Fornebu	55,74%	557.400	9.092.032	3.598.823

NOTE 11 – TRANSACTIONS WITHIN THE GROUP

	2011	2012
Receivable on Simula Innovation AS	1.045.920	2.724.804
Payable to Simula Innovation AS	2.009.848	1.478.544
Receivable on Kalkulo AS	24.535	166.319
Payable to Kalkulo AS	42.015	92.236
Receivable on Simula School of R. and I. AS	863.841	700.737
Payable to Simula School of R. and I. AS	3.237.348	1.886.828
Contribution to Simula Innovation AS	7.597.798	-
Contribution to Simula School of R. and I. AS	15.671.656	17.436.836
Purchase of services from fra Simula Innovation AS	971.403	17.973.810
Purchase of services from Kalkulo AS	254.785	1.243.623
Purchase of services from Simula School of R. and I. AS	365.617	-
Sale of services to Simula Innovation AS	1.862.663	1.872.894
Sale of services to Kalkulo AS	1.716.693	1.778.575
Sale of services to Simula School of R. and I. AS	4.200.983	2.901.675

NOTE 12 – SHARES

	No.	Nominal value per share	Purchase price
Resiliens AS	100.000	1,00	102.886
Testify AS	28.948	1,00	777.117
Expertware AS	30.000	1,00	31.914
Symphonical AS	945.528	0,10	1.295.151
Insilicomed Inc, USA	131.945	USD 1,80	1.220.755
Celerway Communication AS	15.000	1	17.745
Write down of shares			2.179.522
Total			**1.266.046**

NOTE 13 – TAX

The activities of Simula Research Laboratory AS and its subsidiary, Simula School of Research and Innovation AS are not considered taxable. The subsidiaries Simula Innovation AS and Kalkulo AS are both liable to taxation.

Taxation for the year consists of:

Tax payable	1.170.378
Change in deferred tax	- 57.182
Net tax expense	1.113.196

Tax payable for the year is calculated as follows:

Profit before tax	3.899.188
Permanent differences	27.654
Change in temporary differences	253.078
Taxable income	4.179.920
Tax payable	**1.170.378**

Deferred tax liability/asset

	Jan 1.	Dec. 31
Fixed assets	-10.578	- 18.474
Tax loss carryforwards	- 1.220.754	- 1.220.754
Other differences	1.228.800	983.618
Basis for deferred tax	- 2.532	- 255.610
Deferred tax liability/asset, 28%	**- 709**	**- 71.572**

NOTE 14 – LEASES

The company has signed leases for four photocopiers which all expire in 2013. The company also has leases for three coffee machines, which also expire in 2013. Leasing expenses amounted to **NOK 306.194 in 2012.**

The company has leased a car for the managing director which expires in 2015. Leasing expenses amounted to **NOK 73 734** in 2012.

In addition the company has two leases for computer equipment. One lease expires in 2016, the other in 2017. The two leases together amounts to **NOK 294.078**.

NOTE 15 – PLEDGED SECURITIES

Assets pledged as security for liabilities in the parent company amounts to **NOK 4 883 334**. Plant and machinery is pledged to the amount of **NOK 2 500 000** and receivables to **NOK 5 000 000**. The book value of pledged assets amounts to **NOK 13 504 383.**

ACCOUNTS

CASH FLOW STATEMENT

2012

2011	2012			2012	2011
	GROUP			**PARENT COMPANY**	
			Cash flow from operating activities:		
6.389.410	8.591.112		Net profit for the year	2.206.297	4.298.178
1.140.386	1.360.261		Depreciation	1.151.677	1.049.365
-10.962.300	-3.784.744		Change in receivables	-2.500.153	4.832.238
5.046.739	-823.438		Change in current liabilities	-2.574.516	619.584
1.614.235	5.343.191		Net cash flow, operating activities	-1.716.695	1.134.889
			Cash flow, investment activities:		
-1.243.800	-8.408.531		Investments in property, plant and equipment	-7.857.226	-1.210.550
-86.294	-967.814		Investment in/sale of shares	-	-
-1.330.094	-9.376.345		Net cash flow, investment activities	-7.857.226	-1.210.550
			Cash flow from financing activities:		
	5.000.000		Long-term loan	5.000.000	
	-166.666		Liquidation	-166.666	
1.354.522			Write down of shares/receivables	-	-
-48	-57.183		Change in deferred taxes	-	-
1.354.474	4.776.151		Net cash flow, financing activities	4.833.334	
1.638.616	742.997		Net cash flow for the year	-4.740.587	75.661
26.363.509	28.002.125		Cash reserves at Jan. 1	18.369.526	18.445.187
28.002.125	28.745.122		Cash reserves at Dec. 31	13.628.939	18.369.526

V LUNDES *Revisjonskontor* DA

Til generalforsamlingen i
SIMULA RESEARCH LABORATORY AS

REVISORS BERETNING FOR 2012

Uttalelse om årsregnskapet
Vi har revidert årsregnskapet for SIMULA RESEARCH LABORATORY AS som består av selskapsregnskap, som viser et overskudd på kr. 2.206.297,-, og konsernregnskap, som viser et overskudd på kr. 6.998.273,-. Selskapsregnskapet og konsernregnskapet består av balanse per 31. desember 2012, resultatregnskap og kontantstrømoppstilling for regnskapsåret avsluttet per denne datoen, og en beskrivelse av vesentlige anvendte regnskapsprinsipper og andre noteopplysninger.

Styret og daglig leders ansvar for årsregnskapet
Styret og daglig leder er ansvarlig for å utarbeide årsregnskapet og for at det gir et rettvisende bilde i samsvar med regnskapslovens regler og god regnskapsskikk i Norge, og for slik intern kontroll som styret og daglig leder finner nødvendig for å muliggjøre utarbeidelsen av et årsregnskap som ikke inneholder vesentlig feilinformasjon, verken som følge av misligheter eller feil.

Revisors oppgaver og plikter
Vår oppgave er å gi uttrykk for en mening om dette årsregnskapet på bakgrunn av vår revisjon. Vi har gjennomført revisjonen i samsvar med lov, forskrift og god revisjonsskikk i Norge, herunder International Standards on Auditing. Revisjonsstandardene krever at vi etterlever etiske krav og planlegger og gjennomfører revisjonen for å oppnå betryggende sikkerhet for at årsregnskapet ikke inneholder vesentlig feilinformasjon.

En revisjon innebærer utførelse av handlinger for å innhente revisjonsbevis for beløpene og opplysningene i årsregnskapet. De valgte handlingene avhenger av revisors skjønn, herunder vurderingen av risikoene for at årsregnskapet inneholder vesentlig feilinformasjon, enten det skyldes misligheter eller feil. Ved en slik risikovurdering tar revisor hensyn til den interne kontrollen som er relevant for selskapets utarbeidelse av et årsregnskap som gir et rettvisende bilde. Formålet er å utforme revisjonshandlinger som er hensiktsmessige etter omstendighetene, men ikke for å gi uttrykk for en mening om effektiviteten av selskapets interne kontroll. En revisjon omfatter også en vurdering av om de anvendte regnskapsprinsippene er hensiktsmessige og om regnskapsestimatene utarbeidet av ledelsen er rimelige, samt en vurdering av den samlede presentasjonen av årsregnskapet.

Etter vår oppfatning er innhentet revisjonsbevis tilstrekkelig og hensiktsmessig som grunnlag for vår konklusjon.

Konklusjon
Etter vår mening er årsregnskapet avgitt i samsvar med lov og forskrifter og gir et rettvisende bilde av selskapets og konsernet SIMULA RESEARCH LABORATORY AS' finansielle stilling per 31. desember 2012 og av resultatet og kontantstrømmen for regnskapsåret som ble avsluttet per denne datoen i samsvar med regnskapslovens regler og god regnskapsskikk i Norge.

Uttalelse om øvrige forhold
Konklusjon om årsberetningen
Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, mener vi at opplysningene i årsberetningen om årsregnskapet, forutsetningen om fortsatt drift og forslaget til anvendelse av overskuddet er konsistente med årsregnskapet og er i samsvar med lov og forskrifter.

Konklusjon om registrering og dokumentasjon
Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, og kontrollhandlinger vi har funnet nødvendig i henhold til internasjonal standard for attestasjonsoppdrag (ISAE) 3000 «Attestasjonsoppdrag som ikke er revisjon eller forenklet revisorkontroll av historisk finansiell informasjon», mener vi at ledelsen har oppfylt sin plikt til å sørge for ordentlig og oversiktlig registrering og dokumentasjon av selskapets regnskapsopplysninger i samsvar med lov og god bokføringsskikk i Norge.

Oslo, den 18. februar 2013

Erik A. Bell
Statsautorisert revisor

statsautorisert revisor
ERIK A. BELL
medlem av DnR.

SOCIAL RESPONSIBILITY AND WORKING ENVIRONMENT

Simula is a nonprofit public utility enterprise. The company contributes to society by engaging in basic long-term research within the fields of communication systems, scientific computing, and software engineering. In addition, Simula conducts education and fosters innovation on basis of the research.

To reach its goals, Simula is continuously working to ensure good working conditions. The following summary highlights some of the topics Simula is addressing in order to maintain and develop its standards within ethics, gender balance, and general working conditions.

Ethics
Maintaining high ethical standards has a value in itself for both Simula and each individual employee is part of

Simula's responsibility as a contributor to Norwegian society, and it is a fundament for trust from the outside world. Simula's code of ethics is developed with the purpose to increase awareness of, and compliance with, the high ethical standards required of the employees. The code of ethics includes topics such as research ethics; the working environment and inclusion; gifts, enticements and corruption; confidentiality; and conflicts of interest.

Equality and diversity
It is an important objective for Simula to be a workplace where men and women are given the same opportunities for professional and personal development. In order to strengthen the focus and to follow up on the promising results shown in our previous work[1] on improving the balance, Simula will con-

tinue to focus on initiatives for both recruiting new and talented female candidates, and for developing and adapting work situations for qualified women. Simula will pursue the goal of a minimum 30 per cent female contingent among scientific staff by 2022.

Simula's workplace is diverse in both cultural and national origin, and currently more than 50 per cent of the employees are from countries outside Norway. The employees represent more than 30 different nationalities[2]. Simula takes different measures to make the transition to a Norwegian workplace effective and positive, including administrative support and Norwegian language training.

[1] *See figure 1*　　　[2] *See figure 2*

Working environment

Simula aspires to be an excellent workplace. This will be ensured through an internal inspection system that addresses health, safety and the working environment. The Working Environment Committee at Simula makes efforts to develop and maintain the quality of the working environment. It participates in planning, and follows up questions concerning the safety, health and welfare of the employees.

Simula has entered into an agreement with NAV (the Norwegian Labour and Welfare Organisation) concerning "the inclusive workplace". The purpose of the agreement is to prevent and reduce absence related to illness, strengthen job attendance and improve the working environment, as well as avert exclusion and withdrawal from working life. An action plan with focus on how Simula addresses these matters is discussed with NAV annually.

Competence development and recruitment

Simula needs competent and motivated employees with specific expertise in order to reach its targets. Simula works continuously to attract, develop and retain talented employees with varied backgrounds.

Simula's leaders play a key role with respect to Simula's results. Simula facilitates professional and personal development to enhance expertise, and provides a leadership development seminar for current and potential leaders at department level.

Conflict resolution and notification of censurable conditions

Simula will ensure a safe and secure working environment in accordance with the company's principles on workplace culture. Simula has developed guidelines for conflict resolution and notification, meeting all the requirements in the personnel guidelines and the Working Environment Act. These guidelines encourages employees to take an active role in creating a working environment in which conflict is handled in an open, honest and constructive way, and in trying to prevent destructive forms of conflict from arising.

Emergency Response Plan

Simula is developing an emergency response plan in order to be better prepared for unexpected events and emergencies. This work is based on a risk analysis, and takes into account threats related to unexpected accidents or events that can arise locally or when employees are travelling in Norway and abroad.

External environment

Simula's activities do not pollute the external environment. In addition, Simula encourages environmentally responsible behavior throught the way the company is run. Simula has a program for employees that choose not to drive a car to the workplace, by financially supporting their use of public transport. In 2012, 41 percent of the employees were signed up for the program. Additionally, Simula has set a goal of being paper-free by 2015, in the sense that all administrative processes will be digital and the current total consumption of paper will be halved.

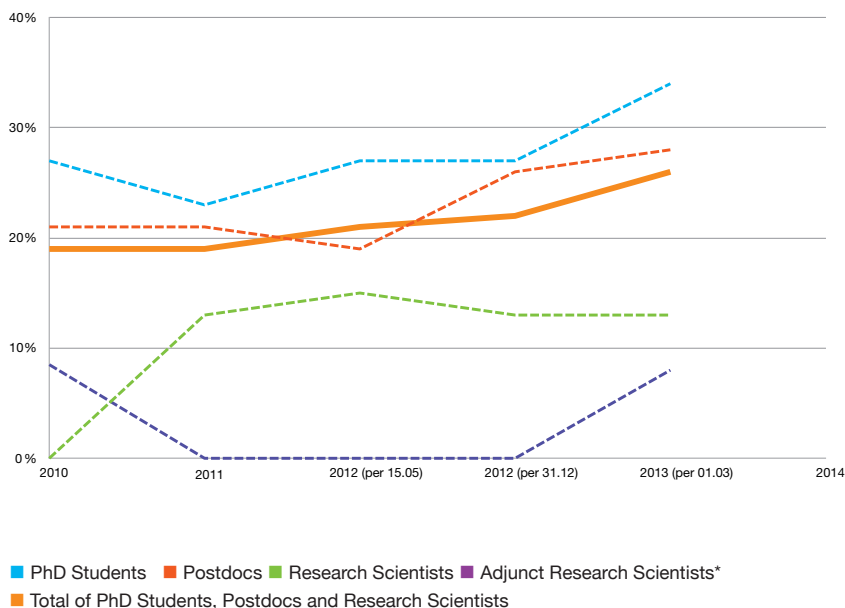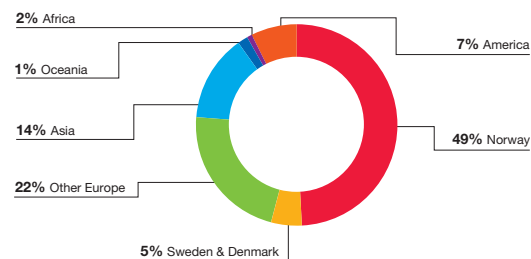**Fig. 1 Percentage of female employees in scientific positions**

Fig. 2 Nationalities 2012

PhD Students Postdocs Research Scientists Adjunct Research Scientists*
Total of PhD Students, Postdocs and Research Scientists

DOCTORATES and MASTER'S DEGREES

This list presents MSc and PhD degrees awarded by the University of Oslo and other cooperatng degree awarding institutions in Norway and abroad. The degrees are obtained by candidates that are supervised throughout their projects by Simula researchers.

Master's students	Supervisors	Theses
Gabriel Balaban	Anders Logg, Marie Rognes	Numerical Methods for Fluid Structure Interaction Problems
Maria Chiara Bianchi	Stuart Clark, Mark Smethurst, Roberto Sabadini[1], Hans-Peter Bunge[2]	Analysing the Variation of Plate Motions in forming the South Atlantic
Kristoffer Egil Bonarjee	Håkon Kvale Stensland, Carsten Griwodz, Pål Halvorsen	Investigating Host-Device communication in a GPU-based H.264 encoder
Olga Bondarenko	Håkon Kvale Stensland, Carsten Griwodz	The Influence of Latency on Short- and Long-Range Player interactions in a Virtual Environment
Marius Brendmoe	Pål Halvorsen, Carsten Griwodz	Generating gameplay scenarios through faction conflict modeling.
Ida Norderhaug Drøsdal	Kent-André Mardal, Karen-Helene Støverud	Porous and Viscous Modeling of Cerebrospinal Fluid Flow in the Spinal Canal Associated with Syringomyelia
Øystein Gyland	Carsten Griwodz, Kristian R. Evensen, John Markus Bjørndalen[3]	Heterogene lenker og båndbreddeaggregering
Magnus Funder Halldal	Håkon Kvale Stensland, Pål Halvorsen, Carsten Griwodz	Exploring computational capabilities of GPUs using H.264 prediction algorithms.
Adrian Roaldssønn Hope	Kent-André Mardal, Mikael Mortensen	Analysis of a system of elliptic partial differential equations and its possible boundary conditions when discretized with Hermite and Lagrange elements
Anders Elstad Johansen	Joakim Sundnes	A FEniCS based solver for actively contracting heart muscle tissue
Siri Kallhovd	Joakim Sundnes	Computer Modeling of the Cardiovascular System and Blood Pressure Regulation
Kristian Haga Karstensen	Pål Halvorsen, Alexander Eichhorn	Silhouette Extraction using Graphics Processing Units
Mathias Myrland	Tor Skeie, Sven Arne Reinemo	Creating and evaluating a Distributed Virtual Machine using zero-copy RDMA operations over InfiniBand networks
Mats Holm Rosbach	Andreas Petlund, Michael Welzl [4], Carsten Griwodz	Verification of Network Simulators - The good, the bad and the ugly
Mikkel Bruvik Sanderud	Kent-André Mardal, Karen-Helene Støverud, Per Kristian Eide [5]	Patient-Specific Modeling of Normal Pressure Hydrocephalus
Mohammed Sourouri	Tor Gillberg, Hans Petter Langtangen	A Parallel Front Propagation Method: Simulating geological folds on parallel architectures
Eline Sundt	Anders Logg, Marie Rognes	Adaptive techniques for computing shear stresses in biomedical flows

Master's students	Supervisors	Theses
Simen Sægrov	Pål Halvorsen, Carsten Griwodz	Bagadus: next generation sport analysis and multimedia platform using camera array and sensor networks
Fredrik Heffer Valdmanis	Marie Rognes, Anders Logg	GPU accelerating the FEniCS Project
Liwei Wang	Hans Petter Langtangen	A Unified Python Interface to a Variety of Software for Solving Ordinary Differential Equations
Sebastian Warmbrunn	Kent-André Mardal, Øyvind Evju, Katherina Baber [6]	Inspecting endovascular aneurysm treatments with porous medium flow simulations and the use of a statistical framework
Julia Wiebe	Stuart Clark, Hans-Peter Bunge [2]	Spreading Velocity Variations in the North Atlantic

Doctorates	Supervisors	Theses
Shaukat Ali	Lionel Claude Briand, Andrea Arcuri	Scalable Model-based Robustness Testing: Novel Methodologies and Industrial Application
Razieh Behjati	Lionel Claude Briand, Shiva Nejati, Tao Yue	A Model-Based Approach to the Software Configuration of Integrated Control Systems
Sigrid Kaarstad Dahl	Leif Rune Hellevik [7], Bjørn Skallerud [7], Jan Vierendels [8], Kent-André Mardal	Numerical simulations of blood flow in the left side of the heart
Kristian Riktor Evensen	Paal E. Engelstad [9], Audun Fosselie Hansen, Carsten Griwodz, Pål Halvorsen	Aggregating the Bandwidth of Multiple Network Interfaces to Increase the Performance of Networked Applications
Nina Elisabeth Holt	Richard Torkar, Lionel Claude Briand	Empirical Evaluations on the Cost-Effectiveness of State-Based Testing: Industrial Case Studies and Extensible Tool
Muhammad Zohaib Iqbal	Lionel Claude Briand, Andrea Arcuri	Environment Model-based System Testing of Real-Time Embedded Systems
Alf Børre Kanten	Karl Halvor Teigen [10], Magne Jørgensen	Looking at the World from a Distance: Construal Level in Time Predictions and Counterfactual Thinking
Dominik Kaspar	Paal E. Engelstad [9], Audun Fosselie Hansen, Carsten Griwodz, Pål Halvorsen	Multipath Aggregation of Heterogeneous Access Networks
André Massing	Anders Logg, Mats G. Larson [11], Marie Rognes	Analysis and Implementation of Finite Element Methods on Overlapping and Fictitious Domains
Rajwinder Kaur Panesar-Walawege	Lionel Claude Briand, Mehrdad Sabetzadeh	Using Model-Driven Engineering to Support the Certification of Safety-Critical Systems
Åshild Grønstad Solheim	Olav Lysne, Tor Skeie	Topology Agnostic Methods for Routing, Reconfiguration and Virtualization of Interconnection Networks
Wenjie Wei	Xing Cai, Ola Skavhaug, Gerhard Zumbusch [12]	Effective Use of Multicore-based Parallel Computers for Scientific Computing
Didem Unat	Xing Cai, Scott Baden [13]	Domain-specific translator and optimizer for massive on-chip parallelism
Aiko Fallas Yamashita	Ole Hanseth [4], Magne Jørgensen	Assessing the Capability of Code Smells to Support Software Maintainability Assessments: Empirical Inquiry and Methodological Approach

(1) Department of Earth Sciences ""Ardito Desio"", University of Milan"

(2) Department of Earth and Environmental Sciences, Ludwig-Maximillians University

(3) Department of Computer Science, University of Tromsø

(4) Department of Informatics, University of Oslo

(5) Department of Neurosurgery, University of Oslo

(6) Department of Hydromechanics and Modelling of Hydrosystems, University of Stuttgart

(7) Department of Structural Engineering, Norwegian University of Science and Technology

(8) Department of Flow and Combustion Mechanics, Ghent University

(9) Telenor ASA

(10) Department of Psychology, University of Oslo

(11) Department of Mathematics and Statistics, University of Umeå

(12) Institute for Numerical Simulation, Friedrich-Schiller-University Jena

(13) Computer Science and Engineering Department, University of California San Diego

LIST OF PUBLICATIONS 2012

Simula only reports publications where a significant part of the research has been funded by Simula. This means that at least one of the authors of the reported publications must have his/ her main affiliation with Simula, and has contributed to the publication as specified in Simula's publication guidelines. Publications from people in part-time positions at Simula are generally not counted unless the research is specifically performed as part of their employment at Simula. Such exceptions from the main rule are very few and must in all cases be approved by the head of department.

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[5] M. Z. Iqbal. *Environment Model-Based System Testing of Real-Time Embedded Systems*. PhD thesis, University of Oslo, 2012.

[6] R. K. Panesar-Walawege. *Using Model-Driven Engineering to Support the Certification of Safety-Critical Systems*. PhD thesis, University of Oslo, 2012.

[7] N. E. Holt. *Empirical Evaluations on the Cost-Effectiveness of State-Based Testing: Industrial Case Studies and Extensible Tool*. PhD thesis, University of Oslo, September 2012.

[8] S. K. Dahl. *Numerical Simulations of Blood Flow in the Left Side of the Heart*. PhD thesis, Norwegian University of Science and Technology, 2012.

[9] A. B. Kanten. *Looking at the World From a Distance: Construal Level in Time Predictions and Counterfactual Thinking*. PhD thesis, University of Oslo, 2012.

[10] K. R. Evensen. *Aggregating the Bandwidth of Multiple Network Interfaces to Increase the Performance of Networked Applications*. PhD thesis, University of Oslo, January 2012.

[11] S. Ali. *Scalable Model-Based Robustness Testing: Novel Methodologies and Industrial Application*. PhD thesis, University of Oslo, 2012.

[12] Å. G. Solheim. *Topology Agnostic Methods for Routing, Reconfiguration and Virtualization of Interconnection Networks*. PhD thesis, University of Oslo, 2012.

[13] R. Behjati. *A Model-Based Approach to the Software Configuration of Integrated Control Systems*. PhD thesis, University of Oslo, 2012.

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[15] A. Massing. *Analysis and Implementation of Finite Element Methods on Overlapping and Fictitious Domains*. PhD thesis, University of Oslo, 2012.

[16] W. Wei. *Effective Use of Multicore-Based Parallel Computers for Scientific Computing*. PhD thesis, University of Oslo, December 2012.

[17] A. Yamashita. *Assessing the Capability of Code Smells to Support Software Maintainability Assessments: Empirical Inquiry and Methodological Approach*. PhD thesis, University of Oslo, 2012.

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[179] S. Ali and T. Yue. A rigorous and comprehensive analysis of effort for modeling aspect state machines. Technical Report 2012-16, Simula Research Laboratory, 2012.

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TALKS AND OUTREACH

[182] S. Ali. Comprehensively evaluating conformance error rates of applying aspect state machines for robustness testing, 2012.

[183] K.-A. Mardal, B. F. Nielsen, and M. S. Alnæs. Efficient preconditioning of optimality systems. EMG 2012, 2012.

[184] K.-A. Mardal and H. P. Langtangen. Will FEniCS fly? FEniCS 12 workshop, 2012.

[185] K.-A. Mardal, H. P. Langtangen, and P. Røtnes. Are zombies a threat to mankind? Invited talk for the opening of "RF kjelleren" at the University of Oslo, 2012.

[186] K.-A. Mardal. The finite element library FEniCS + blood flow simulations in cerebral aneurysms. Marsden's lab at UCSD, 2012.

[187] K.-A. Mardal. The finite element library FEniCS. Steinman's lab, University of Toronto, 2012.

[188] K.-H. Støverud. The relation between Chiari I and syringomyelia -model concepts. Talk at CBC Workshop on Adjoint-Based Methods for Transient Problems: Software and applications, 2012.

[189] K.-H. Støverud. Relation between chiari malformation and syringomyelia. Talk at Summer School on Modeling and Simulation of Soft Tissue BioMechanics, 2012.

[190] K.-H. Støverud, V. Haughton, and H. P. Langtangen. CSF flow dynamics: Effects of viscosity and inertia. Talk at ANSR 2012, New York, 2012.

[191] J. L. de la Vara. Safety certification of critical systems: the opencoss project, 2012.

[192] J. L. de la Vara. Simula, the certus centre, and opencoss, 2012.

[193] J. L. de la Vara. Towards customer-based requirements engineering practices, 2012.

[194] B. F. Nielsen and K.-A. Mardal. The minimal residual method applied to ill-posed optimality systems; eigenvalues and convergence properties. Presented at the workshop "Numerical Methods for Optimal Control and Inverse Problems", Munich, Germany, 2012.

[195] S.-A. Reinemo, F. O. Sem-Jacobsen, and T. Skeie. Fat-trees and dragonflies - a perspective on topologies. Contributed talk at the HPC Advisory Council Switzerland Workshop, Lugano, Switzerland., March 2012.

[196] R. Nerlich, C. Moder, S. R. Clark, and H.-P. Bunge. The scotia sea: Mantle dynamics + plate forces. Computational Geoscience Workshop, Geilo (Norway), 2012.

[197] K. Valen-Sendstad and D. A. Steinman. Is CFD misleading us about the nature of wall shear stresses in cerebral aneurysms? Talk at The 7th International Symposium on Biomechanics in Vascular Biology & Cardiovascular Disease, Atlanta, Georgia, USA, 2012.

[198] T. Gillberg. A parallel 3D front propagation algorithm for simulation of geological folding on GPUs. EAGE 74th Conference & Exhibition, June 2012.

[199] J. Koivumäki, T. Christ, G. Seemann, and M. Maleckar. Divergent action potential morphology in human atrial cells vs. tissue: Underlying ionic mechanisms. Computing in Cardiology conference, September 2012.

[200] J. Koivumäki, M. Maleckar, T. Christ, and N. Rozmaritsa. Calcium buffering in human atrial myocytes. CaMo-UCSD Workshop, San Diego, USA, October 2012.

[201] J. Sundnes and S. Wall. Computer simulations of electro-mechanical interactions in the heart. CBC Workshop on Adjoint-Based Methods for Transient Problems: Software and Applications, March 2012.

[202] J. Sundnes and S. Wall. On the stability of operator splitting schemes for strongly coupled cardiac electro-mechanics. World Congress on Computational Mechanics, Sao Paulo, Brazil, July 2012.

[203] J. Sundnes and S. Wall. Strongly coupled simulations of cardiac electro-mechanics. CBC Biocomp seminar, November 2012.

[204] A. Petlund. When latency matters and how to optimize it. Invited talk at "Internet Quality"-meeting, Copenhagen, June 2012, June 2012.

[205] X. Cai. Some perspectives on high-performance computing in the geosciences. Computational Geoscience Workshop, Geilo, January 19, 2012.

[206] S. Ali. Industry-driven testing: Past, present, and future activities at simula, June 2012.

[207] M. E. Rognes. Techniques for automated treatment of variational forms over arbitrary dimension tensor product finite elements. Talk at BioComp Seminar, Simula, December 2012.

[208] M. E. Rognes. Automatically generated solvers for variational formulations of time-dependent partial differential equations. Talk at ECCOMAS, September 2012.

[209] M. E. Rognes. The FEniCS project: a modern framework for the automated solution of PDEs by FEM. Talk at Computational Geoscience Workshop, January 2012.

[210] M. S. Alnæs. Numerical comparison of preconditioned oneshot and steepest descent on linear elliptic optimal control problems. OCIP 2012, March 2012.

[211] M. S. Alnæs. Efficient compilation of complex tensor algebra expressions. FEniCS Workshop 2012, Simula Research Laboratory, June 2012.

[212] M. S. Alnæs. Automation of PDE constrained optimization - algorithmic differentiation as abstract building blocks in high level algorithms. ECCOMAS 2012, Wien, September 2012.

[213] S. D. Alesio. Testing deadline misses for real-time systems using constraint optimization techniques. 4th Workshop on Constraints in Software Testing, Verification, and Analysis (CSTVA 2012), April 2012.

[214] S. D. Alesio. Testing deadline misses for real-time systems using constraint optimization techniques. The Eleventh SweConsNet Workshop (SweConsNet'12), May 2012.

[215] T. Dreibholz. The nornet project - a research testbed for multi-homed systems. Karlstads Universitet, 11 2012.

[216] K.-A. Mardal. Blood flow in cerebral aneurysms – can turbulence be a risk indicator? SDU workshop, 2012.

[217] S. R. Clark, L. Vynnytska, and A. Schroll. An inverse approach to stratigraphic modelling, 2012.

[218] O. Lysne. Et kritisk blikk på nødnettet. Telecom World, 2012.

[219] M. Sourouri. Intel many integrated core architecture: Scaling multi-core to many-core, December 2012 2012.

[220] J. Koivumäki and P. Tavi. Excitation-contraction coupling in human atrial myocytes: Remodeling in atrial fibrillation. Seminar at the Institute of Biomedical Engineering, KIT, Germany, February 2012.

[221] A. Yamashita. Code smells: What are they good for? RefTest Workshop - XP Malmö 2012, May 2012.

[222] J. Sundnes and S. Wall. Numerical methods for strongly coupled simulations of cardiac electro-mechanics. Workshop on efficient solvers in biomedical applications, Graz, Austria, July 2012.

[223] J. Sundnes and S. Wall. Computer models of electro-mechanical interactions in the contracting heart. Workshop on computational models in biomedicine, Federal University of Juiz de Fora, Brazil, July 2012.

[224] J. Sundnes and S. Wall. Computer models of electro-mechanical interactions in the contracting heart. Seminar at the Norwegian Defence Research Establishment, September 2012.

[225] J. Sundnes, S. Wall, and S. U. Gjerald. Towards patient-specific models of strongly coupled cardiac electro-mechanics. Cardiac Physiome Workshop, San Diego, November 2012.

[226] J. Sundnes and S. Wall. Computational models of electro-mechanical interactions in the infarct injured heart. National PhD conference in medical Imaging, Trondheim, Norway, 2012.

[227] G. T. Lines and X. Cai. Elements of scientific computing. 3-day intensive course given at National University of Defence Technology, China, October 16-18, 2012.

[228] X. Cai. Scientific computing needs supercomputers, but also something else! Invited lecture at National University of Defence Technology, China, March 29, 2012.

[229] T. Dreibholz. An introduction to nornet core for the site deployment at universitetet i stavanger. Universitetet i Stavanger, November 2012.

[230] M. Mortensen. Flexible software tools for computational turbulence. Keynote talk at the 25th Nordic Seminar on Computational Mechanics, 2012.

[231] H. P. Langtangen and M. Mortensen. Flexible specification of large systems of nonlinear PDEs. Keynote talk at the 2nd HPC[3] Workshop on High-Performance Computing, KAUST, Saudi-Arabia, February 2012.

[232] M. E. Rognes. Automated FEniCS frameworks for adjoint models and their applications. Talk at KAUST, November 2012.

[233] M. E. Rognes. The FEniCS project: a short course. Talk at KAUST, November 2012.

[234] M. E. Rognes. The FEniCS project: a tutorial. Talk at Imperial College, 2012.

[235] M. S. Alnæs. A domain specific language and symbolic library for FEM formulations of PDEs - the unified form language. FEniCS@Imperial Day, Imperial College London, June 2012.

[236] C. Griwodz. Media performance: Building and evaluating multimedia systems. Academica Sinica, Taipeh, Taiwan, November 6, November 2012.

[237] C. Griwodz. Media performance: Building and evaluating multimedia systems. National Tsing Hue University, Hsinchu, Taiwan, November 7, November 2012.

[238] M. Jørgensen. Keynote at euromicro, cesme, August 2012.

[239] O. Lysne. Research in ict: What we should do, and why it matters. VERDIKT Conference, April 2012.

[240] L. Moonen. Assuring software quality by code smell detection. Most Influential Paper Award, 19th Working Conference on Reverse Engineering (WCRE), Oct 2012.

[241] K. Valen-Sendstad, K.-A. Mardal, and D. A. Steinman. Revisiting 'turbulence' in cerebral aneurysms. ECI Conference on Computational Fluid Dynamics (CFD) in Medicine and Biology in conjunction with the Seventh International Biofluid Mechanics Symposium March 25-30, 2012 Crowne Plaza Dead Sea, Ein Bokek, Dead Sea, Israel, 2012.

[242] J. Hake, A. G. Edwards, Z. Yu, P. Kekenes-Huskey, A. P. Michailova, A. J. McCammon, M. J. Holst, M. Hoshijima, and A. D. McCulloch. Modeling calcium sparks in a three-dimensional reconstruction of a cardiac calcium release unit. Presented at Annual meeting of Biophysical Society, 2012.

[243] A. G. Edwards, J. Hake, J. H. Brown, and A. McCulloch. βar-stimulation causes eads but not dads in pre-failure camkiiδc transgenic myocytes. Presented at the Annual meeting of Biophysical Society, 2012.

[244] P. M. Kekenes-Huskey, J. Hake, Y. Cheng, M. Holst, F. B. Sachse, J. H. Bridge, A. D. McCulloch, J. A. McCammon, and A. Michailova. Modeling calcium dynamics in realistic rabbit ventricular myocytes with several transverse tubules, 2012.

[245] J. Koivumäki, T. Christ, G. Seemann, and M. Maleckar. Divergent action potential morphology in human atrial cells vs. tissue: Underlying ionic mechanisms. EWGCCE meeting, Nantes, France, September 2012.

[246] J. E. Hake, H. K. Mørk, K. Hougen, I. Sjaastad, O. M. Sejersted, and W. E. Louch. Altered configurations of Ca^{2+} release units cause slowed Ca^{2+} sparks in failing cardiomyocytes. Presented at the Cardiac Physiom Workshop in San Diego, Nov 2012.

[247] L. Vynnytska, D. Stegman, and S. R. Clark. The afar region: Numerical modeling using geological data, 2012.

[248] R. Nerlich, S. R. Clark, and H.-P. Bunge. The scotia sea: No asthenosphere outlet from under the pacific. EGU 2012, Vienna, Austria, April 2012.

[249] R. Nerlich, C. Moder, S. R. Clark, and H.-P. Bunge. Numerical models of the scotia sea with globally consistent boundary and initial conditions. AGU 2012, San Francisco, USA, December 2012.

[250] S. Hippchen, B. Ghorbal, C. Moder, and S. R. Clark. Geology, tectonics, and intraplate deformation in south america: Revisited block boundaries, December 2012.

[251] M. Mortensen. Kan vi regne ut hvem som får hjerneslag? Talk at Ungforsk 2012, UiO, September 2012.

[252] M. Jørgensen. Hvor gode er vi til å forutse kriser? Article in Computerworld, 2012.

[253] M. Jørgensen. Vakker programvarekode. Article in Computerworld, 2012.

[254] M. Jørgensen. Vil vi noen gang få feilfri programvare? Article in Computerworld, 2012.

[255] M. Jørgensen. Jo mer usikker, jo mer middels. Article in Computerworld, 2012.

[256] M. Jørgensen. Smått er godt, eller jo større jo bedre. Article in Computerworld, 2012.

[257] M. Jørgensen. Lønnsdiskriminering i it-bransjen. Article in Computerworld, 2012.

[258] M. Jørgensen. Hvor mye er en svært dyktig it-utvikler verdt? Article in Computerworld, 2012.

[259] M. Jørgensen. Relative estimation of software development effort: It matter with what and how you compare. Presentation at JavaZone, 2012.

[260] M. Jørgensen. Fra myter til evidens. Invited talk (TAD-seminar), 2012.

[261] M. Jørgensen. Software development effort estimation: Why it fails and how to improve it. Steria-seminar, 2012.

[262] O. Lysne. Kan markedet gi oss robuste telenett? Telecruice, April 2012.

[263] O. Lysne and A. Kvalbein. Kan markedet gi oss robuste telenett? Computerworld, February 2012.

[264] M. Burger and B. F. Nielsen. Funding: Deutscher akademischer austauschdienst programme des projektbezogenen personenaustauschs daadppp mobility programme germany–norway. Circulation, 125 (18), 2012.

[265] X. Cai and M. Wen. Simulating basin evolution on gpu-enhanced hybrid supercomputers. META Magazine, Issue 02/2012, pages 22-25, 2012.

[266] C. Timmerer and C. Griwodz. Dynamic adaptive streaming over http – from content creation to consumption. Tutorial, ACM Multimedia 2012, Nara, Japan, October 2012.