

AMSTERDAM CENTER FOR FORENSIC SCIENCE AND MEDICINE

Co van Ledden Hulsebosch Center

ANNUAL REPORT 2015



Academic Medical Center (AMC)



University of Amsterdam – Faculty of Science (FNWI)



Netherlands Forensic Institute (NFI)



INTRODUCTION

Maurice Aalders and Arian van Asten
with contributions of Rick van Rijn, Roelof-Jan Oostra, Liesbeth Smits, Hans de Boer, Udo Reijnders, Peter Schoenmakers, Gabriel Vivo-Truyols, Ate Kloosterman, Pim de Voogt, Karla de Bruin, Zeno Geradts, Marcel Worring, Marjan Sjerps, Bert van Es, Pernette Verschure, Eva de Rijke, Gareth Davies and Christianne de Poot

In September 2015 the Co van Ledden Hulsebosch Center (CLHC), Amsterdam Center for Forensic Science and Medicine existed for exactly 2 years. When founding the center, this two year period was chosen to evaluate the viability of the initiative and therefore the founding partners of the CLHC, the Faculty of Science (FNWI) and the Academic Medical Center (AMC) of the University of Amsterdam (UvA) and the Netherlands Forensic Institute (NFI) had to renew the partnership agreement. To support this decision a comprehensive evaluation was undertaken on the basis of the annual reports of 2013 and 2014. The evaluation based on objective criteria was very positive as the center met or even exceeded the expectations of the partners in many of the goals set. With a forensic scientific output of over 30 PhD projects, more than 100 peer reviewed scientific articles and 8 successful PhD defences in two years the partners unanimously decided to prolong the collaboration and signed a renewed agreement for the indefinite continuation of the CLHC with an evaluation every 3 years.

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This new agreement also marked a new phase for the center. After a successful introductory period, the challenge is to create a valuable and consistent portfolio of activities with respect to forensic science, forensic education and forensic communication. This challenge was illustrated by the four goals and priorities for the CLHC as formulated in the evaluation report:

1. Grow the scientific portfolio and realize sufficient funding
2. Build an international network and establish the CLHC internationally
3. Strengthen the connection of the CLHC and the Forensic Science Master Program
4. Increase the scientific and societal impact of the CLHC

In this annual CLHC report the 2015 results are not only listed and analyzed in terms of quality and quantity but are also emphasized with respect to these strategic goals. In the report the following icons are used to illustrate this:

Scientific Impact

Funding

International Network

Education

Society



CLHC ANNUAL REPORT 2015

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ORGANIZATION

Currently the network contacts within CLHC organization are well established and the following AMC, UvA and NFI colleagues played an important role in the center in 2015:

photo: Paul Deelman

Dean FNWI:	Karen Maex (Peter van Tienderen)
Chairman AMC:	Marcel Levi
General director NFI:	Reinout Woittiez
Board members – AMC:	Ton van Leeuwen, Jaap Stoker
Board members – FNWI:	Jan Wiegerinck, Joost Reek (Marcel Bartels)
Board members – NFI:	Wim van Geloven, Marcel van der Steen (Wim Heijnen)
Board Advisor – AMC:	Agita Sanders
CLHC Director – AMC:	Maurice Aalders
CLHC Director – FNWI:	Arian van Asten (for 0.2 fte from NFI)
Education Coordination FNWI:	Andrea Haker, Yorike Hartman
Education Coordination AMC:	Rick van Rijn, Roelof Jan Oostra
Bureau support FNWI:	Eric Sennema
Bureau support AMC:	Gepke Uiterdijk

Coordination @ AMC

BMEPh:	Maurice Aalders
Radiology:	Rick van Rijn
Anatomy, Anthropology, Archeology:	Roelof-Jan Oostra, Liesbeth Smits (Hans de Boer)
Forensic Medicine:	Udo Reijnders

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Coordination @ FNWI

HIMS:	Peter Schoenmakers, Arian van Asten
IBED:	Pim de Voogt, Ate Kloosterman
IoP:	Karla de Bruin (Daniel Bonn)
IvI:	Marcel Worring, Zeno Geradts (Maarten de Rijke)
KdVI:	Bert van Es, Marjan Sjerps
SILS:	Pernette Verschure (Eva de Rijke)
Coordination VU-FALW*:	Laura Font (Gareth Davies)
Coordination HvA*:	Christianne de Poot
Coordination VU-Science*:	Klaas Slooten (Ronald Meester)
Coordination TU Delft-3mE:**	Arjo Loeve (Jenny Dankelman)

** primary partnership to be formalized in 2016*
*** secondary partnership to be formalized in 2016*

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RESEARCH

Institute	Granted Projects	Ongoing Projects	PhDs/ Postdocs	PhD dissertations	Scientific publications *	Scientific presentations**
BMEPh – AMC	1	4	4/1		4	11
RAD - AMC	2	7	7/0		8	5
AAA - AMC	2	3	3/0		13	7
FMED - AMC		2	2/0	1	8	3
HIMS	1	2	3/0		5	12
IBED	2	5	5/0		8	10
IoP		2	2/0	1	2	2
IvI	1	4	5/1		10	5
KdVI	1	4	6/0		8	7
SILS	2	1	0/2		1	4
FALW-VU	-	3	4/3		4	3
HvA	2	3	3/0		5	10
Other						
Total	**14**	**40*** **	**44/7**	**2**	**73**** **	**79**

Forensic science and forensic science related activities within the CLHC institutes in 2015

* *Publications that appeared in a printed volume in 2015 (i.e. full reference available) in peer-reviewed scientific journals or as books/ book chapters with ISBN numbers*

** *Scientific key note, invited speaker or accepted abstract presentations in official symposia and conferences (excluding workshops and internal UvA events)*

*** *In four projects, multiple CLHC institutes are involved and hence the sum of the institute projects exceeds the total number of forensic projects from a CLHC perspective.*

**** *Four articles were a joint effort of multiple CLHC institutes and hence the sum of the institute papers exceeds the total number of forensic publications from a CLHC perspective.*

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Special Chairs

Important for establishing a solid scientific forensic program in Amsterdam is the appointment of special chairs for relevant forensic science areas. These chairs literally bring the forensic and academic world together and the appointed professors form research focal points from which new initiatives can be undertaken and project proposals can be submitted. In November 2015 prof. dr Udo Reijnders of the GGD (Amsterdam Public Health Service) was appointed on a special chair in forensic medicine at the Academic Medical Center. Additionally, after a successful 1st term of 5 years the appointment of prof. dr Marjan Sjerps on the special chair of forensic statistics was extended with a 2nd term. With these developments a total of 7 special chairs in Forensic Science are currently connected to the CLHC:

- Forensic Biology @ IBED/FNWI – prof. dr Ate Kloosterman (NFI) – 2013-2017 (retirement)
- Forensic Statistics @ KdVI/FNWI – prof. dr Marjan Sjerps (NFI) – 2015-2020 (2nd term)
- Forensic Analytical Chemistry @ HIMS/FNWI – prof. dr Arian van Asten (NFI) – 2012-2017
- Forensic Biophysics @ BMEPh/AMC – prof. dr Maurice Aalders (AMC) – 2012-2017
- Forensic Radiology @ AMC – prof. dr Rick van Rijn (AMC) – 2014-2019
- Forensic Data Science @ IvI/FNWI – prof. dr Zeno Geradts (NFI) – 2014-2019
- Forensic Medicine @ AMC – prof. dr Udo Reijnders (GGD) – 2015-2020

In the renewed CLHC partnership agreement, the founding institutes introduced the option for third parties to join the center as primary or secondary partner to further develop the network and the forensic science portfolio in Amsterdam and the Netherlands. In 2015, the Amsterdam University of Applied Science (HvA) and the VU University Amsterdam, indicated an interest in primary CLHC partnership. The faculty of Earth and Life Science (FALW) of the VU has been connected to the CLHC from the start through the isotope expertise of the group of prof Gareth Davies. Additionally, the interest and investment in forensic science of the faculty of Science of VU University of Amsterdam materialized with the appointment of NFI DNA kinship expert Klaas Slooten on a special chair in Mathematics for Forensic Genetics in the group of prof. dr Ronald Meester on the 1st of September 2015:

- Mathematics for Forensic Genetics @ Science/VU – prof. dr Klaas Slooten (NFI) – 2015-2020



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In 2015 in total 2 inaugural speeches in forensic science were held:

- Rick van Rijn – Forensic Radiology – AMC – May 22nd, 2015: *Elementary, my dear Röntgen!*
- Zeno Geradts – Forensic Data Science – IvI/FNWI – November 12th, 2015: *Extracting Evidence from Multimedia Big Data*



Inaugural speeches of prof. dr Rick van Rijn and prof. dr Zeno Geradts in the 'UvA oratiegallerij'

PhD Theses

In 2015 in total 2 PhD students defended their thesis successfully:

- Nick Laan – *Impact of Blood Droplets* – IoP/NFI – November 25th, 2015
  - Promotor: prof. dr D Bonn
  - Co-promotor: dr K de Bruin
- Eva Hoytema van Konijnenburg – *Child Maltreatment, Parents and the Emergency Department* – November 18th, 2015
  - Promotor: prof. dr J.B. van Goudoever
  - Co-promotors: dr. J.H. van der Lee, dr. R.J.L. Lindauer and dr. S.N. Brilleslijper-Kater



Front covers of the PhD theses of Eva Hoytema van Konijnenburg (AMC) and Nick Laan (FNWI-IoP).

Annual PhD symposium

In 2015 the CLHC forensic PhD symposium was organized for the 2nd time. After the success of the first symposium, the CLCH steering group and board decided to organize the event on an annual basis. The primary goal of the symposium is to create a forensic PhD network/community within Amsterdam and the Netherlands stimulating interdisciplinary initiatives and collaborations in forensic science.

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Additionally, the symposium offers an excellent platform to present the results of the forensic science projects within the CLHC to a broad audience including partners in the criminal justice system. The 2015 symposium was organized at CWI Science Park on Friday, October 23rd and was attended by over 100 FSM students, PhD students, scientists, forensic experts and partners from the criminal justice system. The theme of the symposium was "*Solving Crime through Science*" and in the plenary program 4 PhD students and 1 Postdoc presented their research from a forensic casework and criminal investigation perspective. Additionally, a majority of all forensic PhD students presented their work in a poster session.

A special committee selected the following winner for the Best PhD Poster award of the 2015 CLHC Forensic PhD Symposium:

- *Age Determination of Bruises of Children* – Richelle Hoveling – BMEPh, AMC

NFI director dr Reinout Woittiez addressing the audience during a plenary session of the 2nd CLHC Forensic PhD Symposium (CWI Science Park – 23/10/2015).



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EDUCATION

The CLHC actively supports the Forensic Science Master program of the Institute for Interdisciplinary Studies. The coordinators of the program meet regularly with the CLHC Directors and take part in the CLHC coordinator meetings.

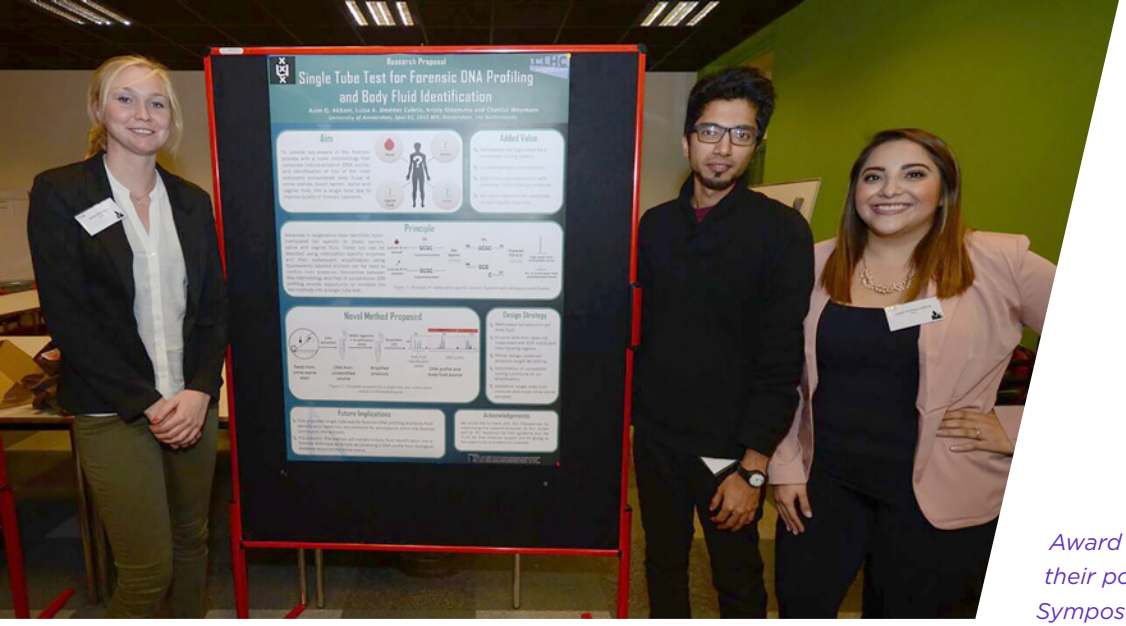
In 2015 the CLHC website was increasingly used by the students to find topics and contacts for literature theses and research projects (*http://www.clhc.nl/education*). The scope of topics provided was broadened as the CLHC network was used to stimulate researchers from various institutes (*e.g.* TNO, Dutch Doping Authority, Dutch Health Inspection Agency) and universities (*e.g.* TU Delft) to post interesting assignments for the students. In the academic year 2015-2016 the literature thesis in the 2nd year of the Forensic Science master was fully coordinated by the CLHC (course coordinator: Arian van Asten) in close collaboration with the Institute for Interdisciplinary Studies. Aditionally, the CLHC aims to provide forensic scientific talent maximum opportunity to continue their career in forensic science through PhD projects that emerge from the CLHC program.

Student participation @ the PhD symposium

To further involve the students in the forensic science program in Amsterdam they were invited to attend the CLHC PhD symposium. The schedule was adopted to fit the symposium in the curriculum. Additionally, a very successful student poster session was organized for the 2nd year students that were participating in the course *Advanced Forensic Biology* coordinated by SILS and IBED (Pernette Verschure, Martijs Jonker, Ate Kloosterman). As part of the course, groups of 4 students had to prepare a poster to present their forensic biological research proposal.

The committee selected the following student group as winner of the Best Student Poster award of the 2015 CLHC Forensic PhD Symposium:

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Award winning FSM students presenting their poster at the 2nd CLHC Forensic PhD Symposium (CWI Science Park – 23/10/2015).

- *Single Tube Test for DNA Profiling and Body Fluid Identification*, from left to right: Kristy Steensma, Asim Akbani, Luisa Jiminez Cubria, and Chantal Weymans (not in image)

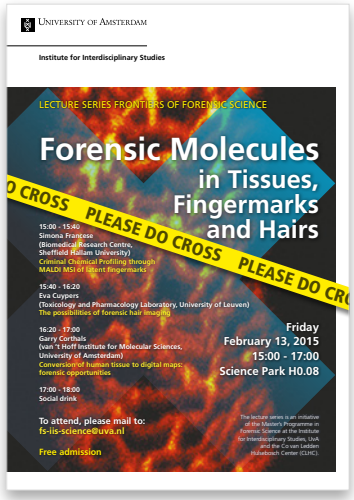
Frontiers in Forensic Science sessions

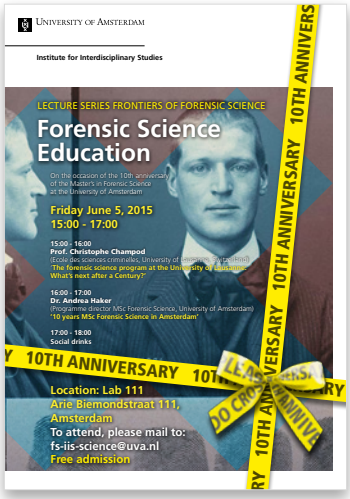
Forensic Science students are also strongly encouraged to attend the jointly organized Frontiers of Forensic Science (FFS) sessions which are part of the Forensic Master program but which are open to scientists, forensic experts and all with a forensic interest.
The CLHC maintains an extensive contact list from the science, forensic and criminal justice communities and each FFS session is announced to these contacts. Consequently, attendance is high (60-100+) and diverse and this provides excellent opportunities for the students to meet forensic and scientific experts, police officers and legal professionals.

In 2015 in total four sessions were organized (two in the academic year 2014-2015 and two in the academic year 2015-2016):

- Forensic Molecules in Tissues, Fingermarks and Hairs – February 13th, 2015 – UvA SP
  International guest speaker: dr Simone Francese (Sheffield-Hallam, UK)
  International guest speaker: prof. dr Eva Cuypers (Leuven, Belgium)
- Forensic Science Education – June 5th, 2015 – Lab 111
  International guest speaker: prof. dr Christophe Champod (Lausanne, Switzerland)
- Innovations in Crime Scene Investigation – September 23rd, 2015 – HvA
  International guest speaker: Melissa Huyck (NYPD, New York, USA)
- Time of Death and Injury – December 4th, 2015 - AMC

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Poster announcements of the FFS sessions organized by the IIS and CLHC in 2015

Teaching

The IIS master program in Forensic Science strongly relies on forensic expert input from the institutes and scientists linked to the CLHC. In the academic years 2014-2015 and 2015-216 many CLHC associated courses and CLHC associated teachers (often CLHC coordinators) were involved in the Forensic Master curriculum. In several courses guest contributions are provided by NFI experts giving the students insights in the role of forensic science in the criminal justice system and the practical considerations of forensic case work. The CLHC institutes also play an important role in providing interesting and challenging research project assignments for the Forensic Science master students during their 2nd year of the master. In the academic years 2014-2015 and 2015-2016, most students successfully concluded their literature thesis and their research project at CLHC associated institutes. The CLHC aims to further strengthen the role and involvement of the forensic PhD students in the Forensic Science Master. Finally, it should be noted that a substantial forensic education effort is also undertaken for Bachelor and Master students in other areas than forensic science. Frequently, students outside the FSM program conduct forensic literature studies and research projects offered by the CLHC. Details can be found in the Institute Annex to this annual report.

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PR, COMMUNICATION AND INTERNATIONAL NETWORK

Forensic science and criminal investigations usually attract a lot of attention from the general public and the media. Hence, a successful forensic science program within the University of Amsterdam can also be used to get society involved and interested in science and the activities of the university. This in turn can attract new generations of talented students to Amsterdam.

As the CLHC represents and coordinates the forensic science efforts at the UvA, the center is expected to create several opportunities each year for promoting science and interacting with the general public. This includes forensic science presentations for a broad audience, articles in newspapers and popular scientific magazines and contributions on the Internet, television and radio.

One of the platforms used for forensic science communication was 'SPUI25' that hosts FNWI's "College Tour" (*http://www.spui25.nl/*). In 2015, two forensic SPUI25 sessions were presented by CLHC partners:

- FNWI collegetour: *Het vaststellen van feiten in strafzaken vanuit juridisch en forensisch perspectief*, Marjan Sjerps (KdVI) en Koen Vriend (Law) – March 18, 2015
- FNWI collegetour: *Green Forensics – CSI in de tuinbouw*, Eva de Rijke (SILS), Hedwich Teunissen (NAK Tuinbouw) – April 6, 2015

In the institute annex to the annual report all PR/ Communication activities are listed including radio and TV interviews, press releases and popular scientific articles and presentations.

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International network

In 2015 the CLHC actively built an international network and the center presented itself to the international forensic community. The EAFS 2015 in Prague was sponsored by the CLHC and the board hosted a CLHC stand at the conference exhibition. As part of the sponsor package more than 1000 attendants of this largest European forensic conference received a copy of the new international CLHC folder in their conference bag. Those interested were given a copy of the glossy print of the 2014 annual report. Additionally, the CLHC matrix model was presented in the scientific program and directors of similar academic forensic institutes were invited for a dinner in Prague to initiate discussions on potential collaborations and on establishing a global forensic academic network. A 2nd more specific conference on sewer epidemiology (*Testing the Waters*, Switserland, 2015) was also sponsored by the center and near 200 participants received the CLHC folder. This conference was supported because of the participation of IBED (prof. dr P. de Voogt) and their research efforts in this novel forensic science area.



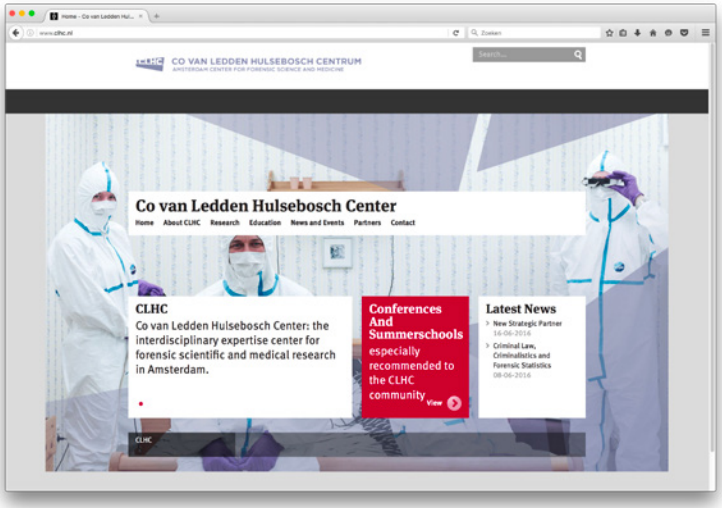


The new international CLHC folder presented at EAFS 2015

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The front and back cover of the glossy print of the 2014 annual report



The main page of the CLHC website, a dynamic platform for forensic information and news (www.clhc.nl)

CLHC website

An important communication platform for internal and external use is the CLHC website (*www.clhc.nl*). In 2015 the website was expanded and further developed. A CLHC web coordinator ensures that the site offers a dynamic platform which provides the latest forensic scientific information both nationally and internationally. Historic documents on the work and life of Co van Ledden Hulsebosch are digitized and made available with the help of the grandson of the forensic pioneer.

Students can use the website to find suitable projects and thesis subjects. Frequently new initiatives, projects and events are announced. It is the ambition of the CLHC Board to add an international partner page to the website and to provide more information on the ongoing research projects and forensic scientists within the associated institutes.

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FINANCIAL

The CLHC holds a limited budget for its activities. Every year all associated FNWI institutes and the AMC provide a small financial contribution which in total make up the annual CLHC budget. The CLHC expenses are relatively small because of the virtual nature of the institute and minimal overhead involved.

It should be noted that the CLHC does not fund research projects nor is directly responsible for such projects. This responsibility sits with the institutes and principle investigators. The modest CLHC means are used to create opportunities in terms of forensic research, forensic meetings and symposia and activities to increase general interest and awareness of the overall forensic science efforts in Amsterdam both nationally and internationally. The CLHC directors discuss progress and "*return on investment*" on a regular basis with the institute directors.

In 2015 most expenses were associated with attending and sponsoring the EAFS 2015 conference. At this conference a new international folder and glossy annual report were presented. The costs for the production of this information material was substantial but serves a broader purpose as these documents can be used in digital and printed form to present the CLHC at various occasions. Substantial costs are also required for the annual CLHC PhD symposium. All attendants of the 2015 event received a special CLHC USB stick.

Credits 2015		Debits 2015	
Balance End 2014	20124 €		
Contribution from	19500 €	Documentation design and printing	7209 €
FNWI institutes and AMC		CLHC forensic events	7459 €
		Conference attendance and sponsoring	4968 €
		PhD/Postdoc support	1402 €
Total	39624 €	**Total**	21038 €
Balance End 2015	**18586 €**		

Financial annual account for the CLHC in 2015 (approved by CLHC Steering Group)

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R&D STRATEGY AND GOALS FOR 2016

In the annual cycle of the CLHC, the board meets every half year with the CLHC steering group to discuss R&D strategy, results and goals.

In the November session the plans for the upcoming year are discussed and agreed and in the May session the annual report describing the results of the previous year is analyzed and finalized. Additionally, progress will be discussed in the ongoing year versus the annual plan and the agreed targets and actions. In November 2015 the CLCH board presented the following main targets for the 2016 annual plan:

- Maintain the portfolio of forensic PhD projects by successfully applying for national and international funding
- Participation in a H2020 consortium and project submission and establishing a successful H2020 forensic science project with involvement of CLHC partners
- Establish an international network and active contacts and collaborations with the leading international academic forensic science research centers
- Further professionalize the CLHC website and include the forensic research themes linked to the various partner institutes
- Strengthen and further expand the national network by arranging primary and secondary partnership within the CLHC and by seeking collaboration with Dutch universities.



Strategic forensic research themes of the CLHC

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INSTITUTE HIGHLIGHTS

In the institute annex all significant forensic achievements in 2015 are listed for every institute and the associated scientists. These results are specifically related and limited to the forensic science efforts. All projects and results have a strong forensic component but this also includes projects that are interdisciplinary in nature and cover a broader range of science areas.

In these instances, the forensic component should be clear and significant in terms of associated grants, financial contributions and/or scientific results.
For some initiatives and new grants (e.g. the Green Forensics program in SILS, Forensic Science for Art in HIMS, Chemometric research project at HIMS) there is a strong forensic aspect but applied in new areas outside the traditional criminal justice system. These initiatives illustrate the additional potential of forensic science in Amsterdam and are strongly supported by the CLHC. The institute overviews have been prepared by the respective CLHC coordinators and illustrate the success of the matrix approach to establish a comprehensive forensic science program in Amsterdam. Highlights of 2015 obtained from these overviews are listed below.

AMC – Forensic BioPhysics

- In november, a STW OTP project *A novel and urgently needed method for age determination at a crime scene of three forensically important biological traces, fingermarks, semen and saliva*, was granted.
  The project (500Keuro) is a collaboration of the AMC, NFI and HIMS.

AMC – Forensic Radiology

- On May 15th 2015, prof. Rick R. van Rijn was named chair of the International Society of Forensic Radiology and Imaging (IFRI).
- On May 22nd 2015, prof. Rick R. van Rijn held his inaugural speech entitled *Elementary, my dear Rontgen*.

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AMC – Anatomy, Anthropology en Archeology

- From March 2nd till 6th 2015, the AMC Spinoza Chair was held by prof. dr Maryna Steyn, professor of Physical and Forensic Anthropology and Director of the Forensic Anthropology Research Centre at the University of Pretoria, South Africa.

AMC – Forensic Medicine

- Appointment of prof. dr Reijnders on a special chair in forensic medicine at the AMC on the 1st of November 2015.
- Successful defence by Eva Hoytema van Konijnenburg of her PhD thesis entitled *Child maltreatment, parents and the emergency department* on November 18th, 2015.

FNWI – HIMS

- Start of a new PhD project on Forensic Explosives Intelligence (FEXIN) on the 1st of October 2015 in collaboration with NFI and TNO and with 500 keuro funding from the Internal Security Fund of the EU.
- Invited lecture of prof. dr Arian van Asten at the Royal Society conference *The Paradigm Shift for UK Forensic Science* in London in February 2015 leading to a vision paper in the Philosophical Transactions of the Royal Society.

FNWI – IBED

- In October 2015 a new course entitled *Advanced Forensic Biology* was added to the curriculum of the Forensic Science Master. This course developed in a joint effort of IBED and SILS (Pernette Verschure, Martijs Jonker and Ate Kloosterman) was very well received by the students.
- A special conference was organized in October of 2015 on sewer epidemiology (*Testing the Waters II*, Monte Verità, Ascona, Switzerland) with a strong contribution from IBED scientists both in the organization and scientific program. This conference was sponsored by the CLHC.

FNWI – IoP

- Successful defence by Nick Laan of his PhD thesis entitled *Impact of blood droplets* on November 25th, 2015.
- Nick Laan and Karla de Bruin received the runner up price of 1000 euro at the 2015 Amsterdam Science and Innovation Award ceremony on the 27th of May 2015.

FNWI – IvI

- On November 12th, 2015, prof. Rick Z. Geradts held his inaugural speech entitled *Extracting Evidence from Multimedia Big Data*.

FNWI – KdVI

- During the 36th WIC symposium in Brussels Nanang Susyanto, PhD student at UvA, Korteweg-de Vries Institute for Mathematics, was awarded Best Student Paper for his paper *Semiparametric Score Level Fusion: Gaussian Copula Approach*.
- FNWI collegetour by M. Sjerps and K. Vriend entitled *Het vaststellen van feiten in strafzaken vanuit juridisch en forensisch perspectief* at SPUI25 on March 18th, 2015.

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- The seed money proposal by Stols-Witlox, Sjerps, Wallert, Hendriks en van Tilborgh entitled *Scientific reasoning in art: evaluating evidence in paintings research using a Bayesian approach* was awarded by NICAS (Netherlands Institute for Conversation, Art and Science).



FNWI – SILS

- In May 2015 Dr. Jana Naue joined the group of Dr. Pernette Verschure (Synthetic Systems Biology and Nuclear Organization) to start as postdoc on the research project *Development of a forensic epigenetic age-determination test* funded by the NCTV – National Coordinator Counter Terrorism and Security of the Dutch Ministry of Security and Justice (2015-2017, budget of 155 keuro).

VU – FALW

- In September 2015 prof. dr Gareth Davies gave a TV interview in *Opsporing verzocht* to explain the findings of the IRMS analyses on the human remains of an unidentified baby.
- The 2015 Science and Justice paper entitled *Provenancing of unidentified World War II casualties: application of strontium and oxygen isotope analysis in tooth enamel* by Font, Jonker, van Aalderen, Schiltmans and Davies was the editor's choice for promotion of the FIRMS SI.

HvA

- In 2015 the RAAK Pro proposal entitled *Vingersporen, de bron en verder* received a grant of 700 keuro. This collaboration between the HvA, TU Delft and NFI (PIs Christianne de Poot and Marcel de Puit) creates 3 new PhD positions within the CLHC.
- As part of the RAAK Pro project *Beter opsporen met het lab op zak* PhD student Anna Mapes visited the forensics department of the NYPD for 10 weeks in the fall of 2015.

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CONCLUDING REMARKS AND INSTITUTE SURVEYS

In a period of 2 years the CLHC has successfully established itself as a main center for forensic science in the Netherlands with a focal point in Amsterdam. Its activities have resulted in a substantial and comprehensive forensic science program including 8 successful forensic PhD theses in the fields of forensic medicine, digital forensics, forensic (bio)physics, forensic chemistry and forensic biology.

The matrix approach has not only been a novel but also an effective instrument to cover the broad range of expertise areas and science domains that are of importance in forensic science. This effort is unique in the Netherlands and supports the quality of the forensic science master program of IIS. In 2015 the CLHC has presented itself internationally at the EAFS 2015 conference in Prague and has taken initial steps to establish an international network of academic forensic science institutes. These efforts should ideally lead to options for international projects with substantial international funding (*e.g.* through the H2020 program) and student exchange programs. In this way the CLHC can maintain and strengthen its forensic research portfolio and can become an internationally acknowledged academic institute in forensic science.

Institute Surveys

In a separate annex of the CLHC Annual Report all significant forensic achievements in 2015 are listed for every institute (in alphabetic order) by the associated scientists and forensic coordinators. This annex is available to CLHC partners and can only be provided externally after a request has been approved by the CLHC board and associated institutes.

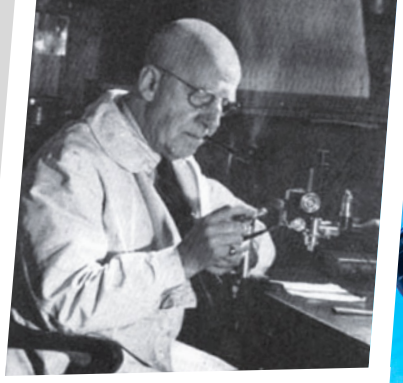
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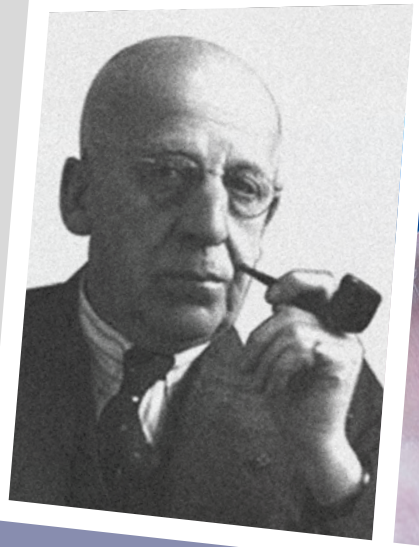
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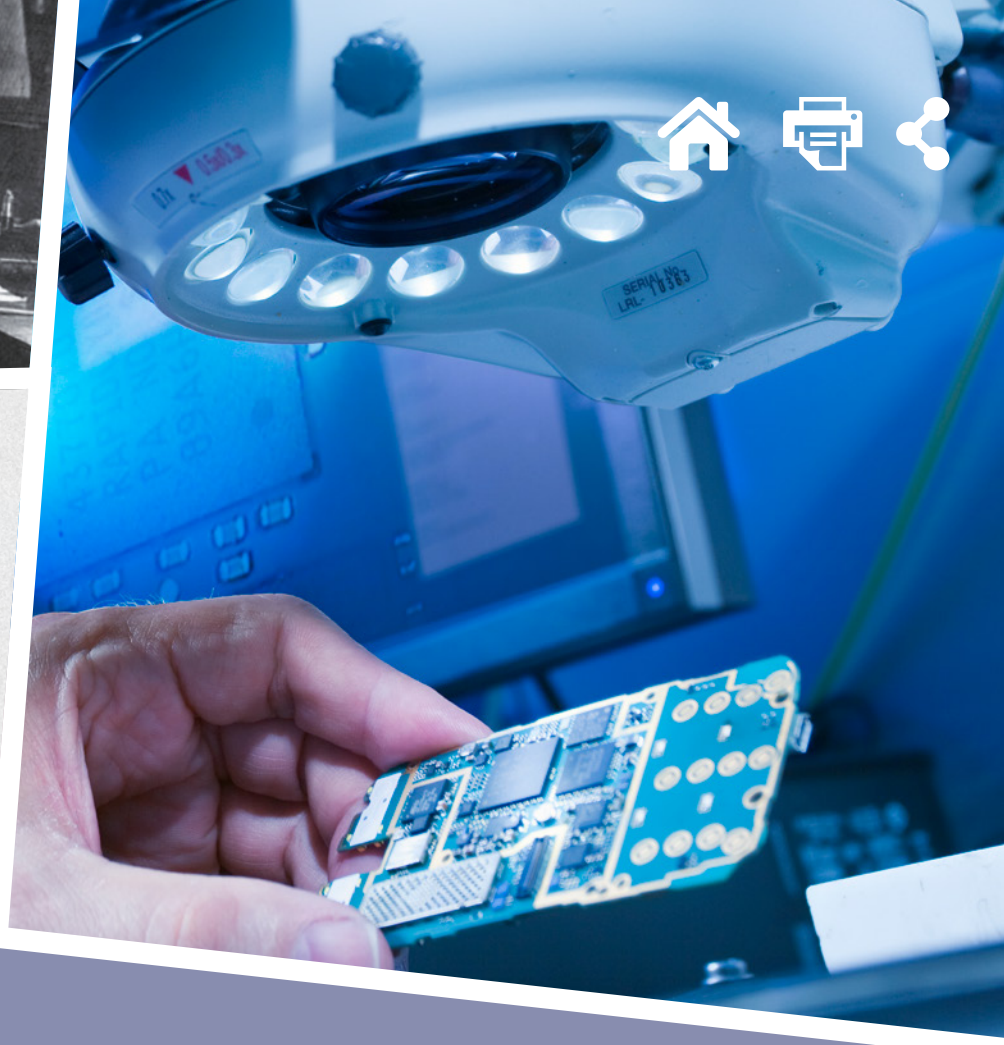
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CLHC Address
Room C2.243
Science Park – Building 904
1098 XH Amsterdam
The Netherlands

Email
clhc-science@uva.nl

Phone
+31 20 - 525 76 56

www.clhc.nl