23rd International Radiocarbon Conference

June 17-22, 2018

Trondheim, Norway

Program

Hosted by

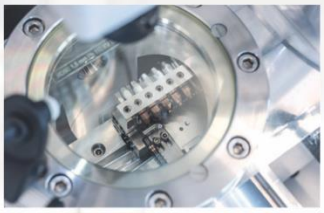
NTNU

University Museum

The National Laboratory for Age Determination

Ionplus

Scientific Instruments for Radiocarbon Dating
and Accelerator Mass Spectrometry



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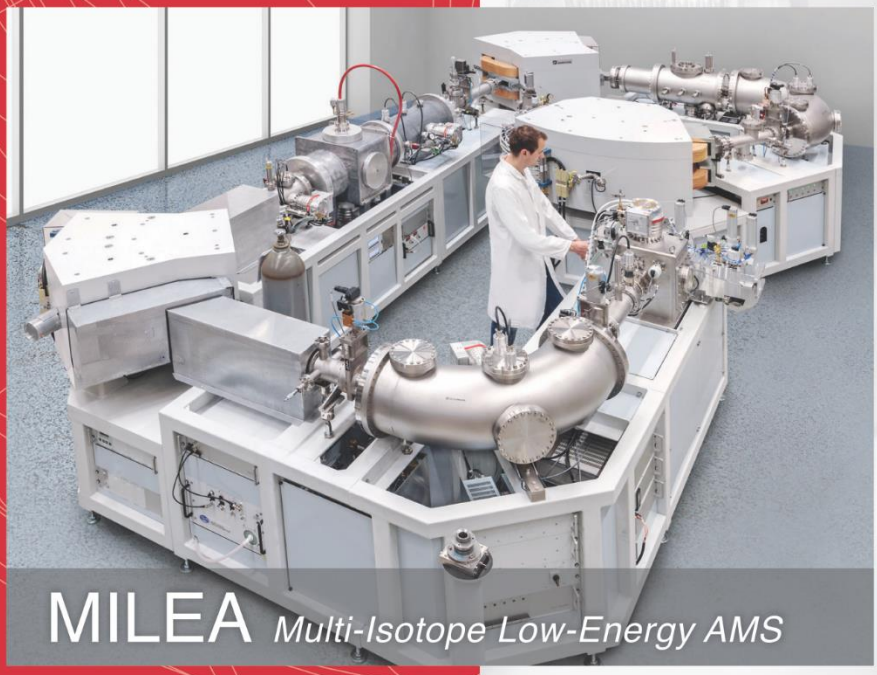

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We want to thank our sponsors for their generous contributions:

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Ionplus
High Voltage Engineering
National Electrostatic Corporation
Thermo Fisher
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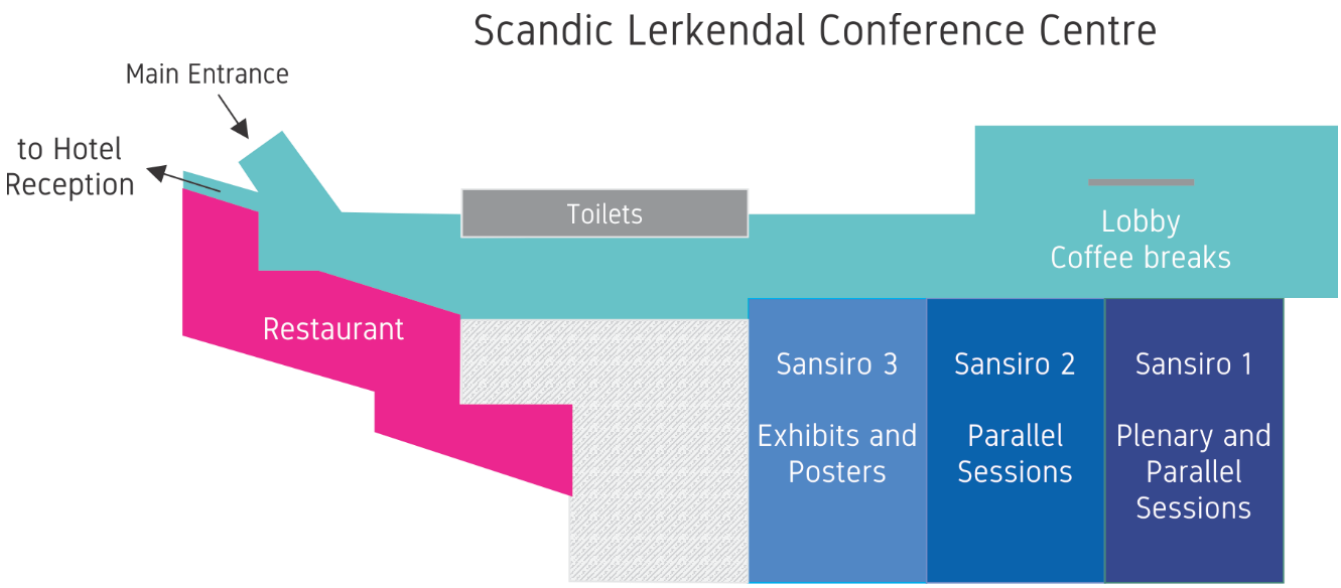
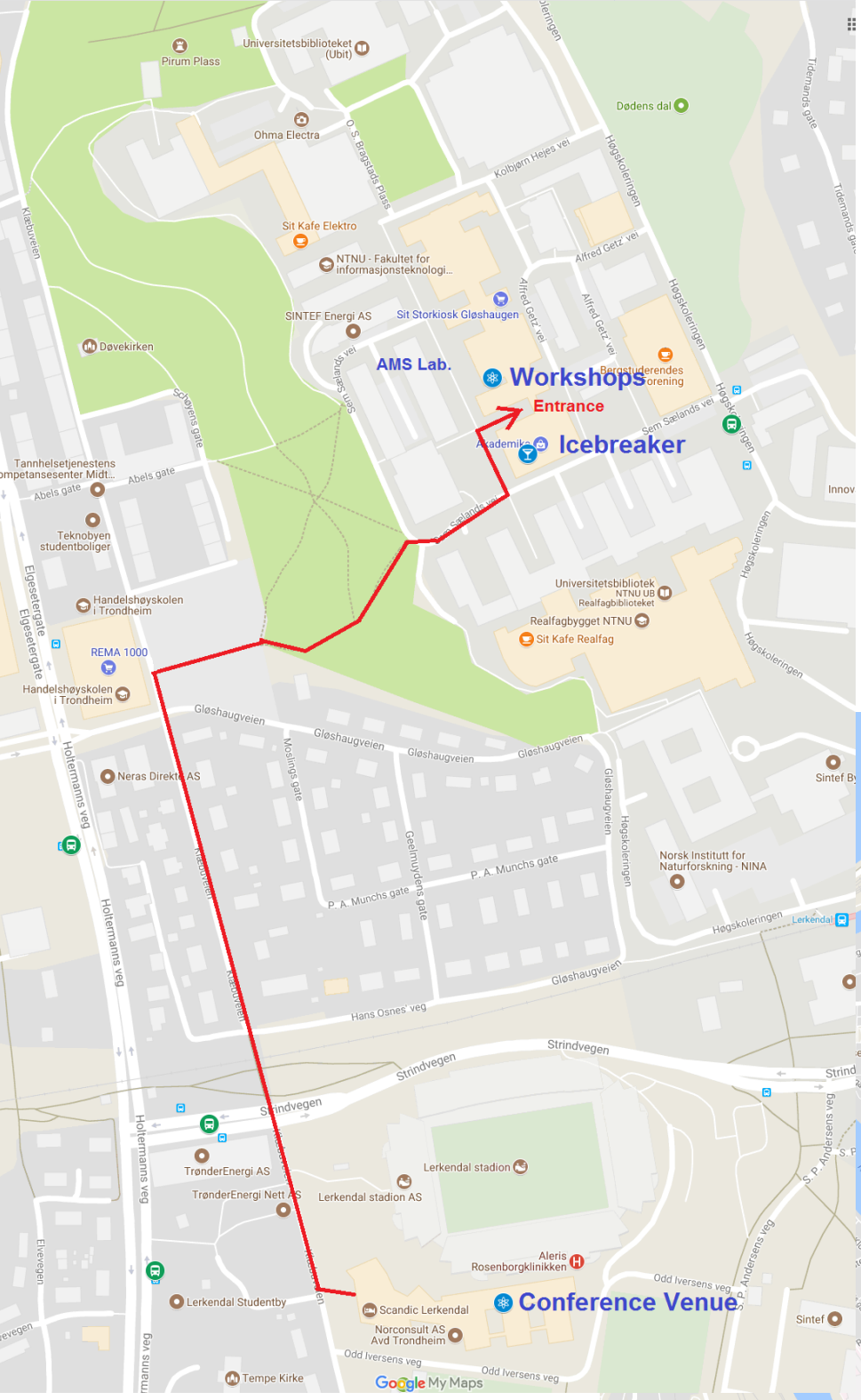
Conference Venues

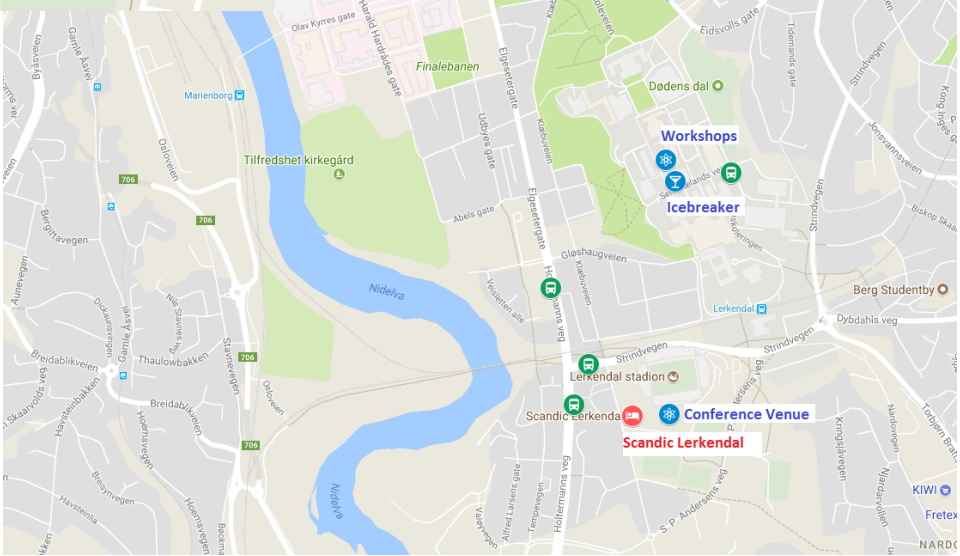
Main Conference Venue

The main conference is held at the hotel Scandic Lerkendal in Trondheim, Norway.

The hotel is within walking distance (30 min) from the city centre. It can be reached easily by public transportation. (Photo: Scandic Hotels)







Maps based on Google Maps

Transportation

From the airport

By train

Commuter trains between Trondheim and the airport go once per hour. The trip takes about 35 minutes to the main station of Trondheim, which is in walking distance to city centre. We recommend taking a local bus to continue to the conference venue at Scandic.

By bus

Værnes-Ekspressen (http://vaernesekspressen.no) offers direct buss connections from the airport to Scandic Lerkendal and many other hotels in town. The trip takes about 40 minutes.

Flybussen (www.flybussen.no) offers fast busses from the airport to several stops in town. There are up to six busses an hour. The conference venue is about 5 min walking from the bus stop "Prof. Brochs gate". The trip takes about 50 minutes

AtB (www.atb.no/en) organizes the public transport in the Trondheim area. Check their homepage to find suitable connections from "Trondheim lufthavn". The bus stop closest to the conference venue is "Lerkendal stadion".

Transportation in town

Walking

Trondheim is a small city and many places, especially in the city centre, are within walking distances.

Bus

AtB operates many bus lines in the Trondheim area. The AtB app and homepage provides a travel planner including all the bus stops. The AtB app also provides a list of nearby bus stops when GPS is activated. Bus stop locations and names are marked on Google maps.

Social Program

Ice Breaker Reception

Sunday June 17th at 16:00

An Ice Breaker Reception together with early registration is organized on Sunday June 17th at 16:00. It is located in the Central building of the Gløshaugen Campus of the Norwegian University of Science and Technology (NTNU). The Ice Breaker Reception is included in the registration fee. Extra tickets can be purchased on the conference web site.

The Ice Breaker Reception is sponsored in part by Ionplus.

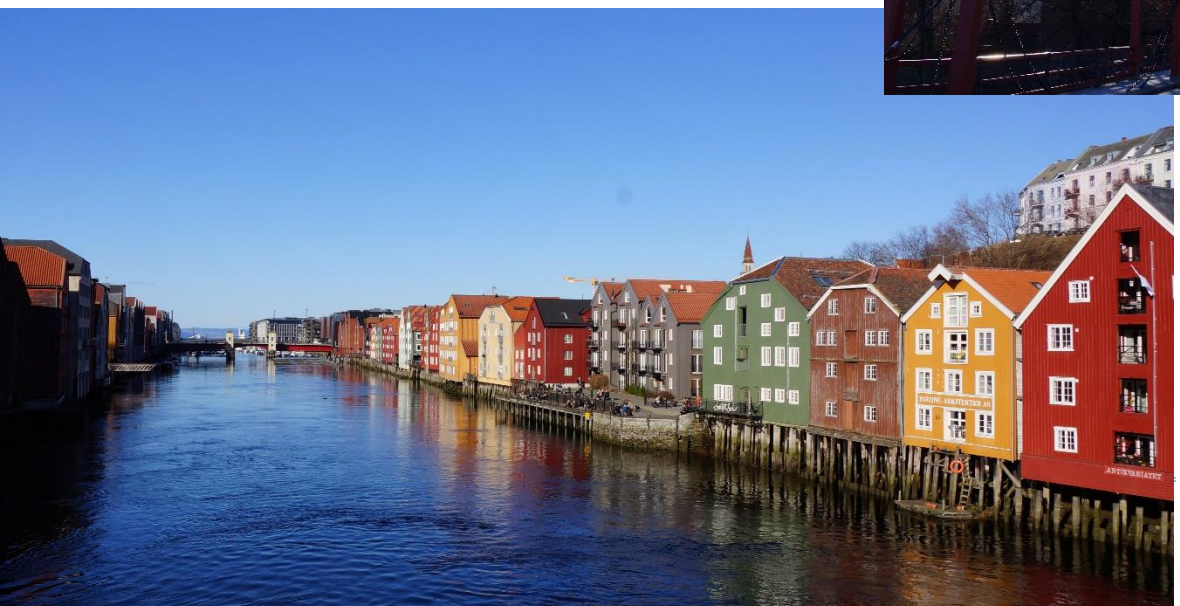
Ionplus

engineering scientific instruments

City Tour

Tuesday the 19th, 18:15

Get to know Trondheim city and its history from the Middle Ages and up to modern times. The guided tour will start outside Hotel Scandic Lerkendal at 18:15 on Tuesday the 19th, and lasts approximately 90 mintues. We will see the Archbishop's palace, the Nidarosdomen cathedral, the old Dock at Bakklandet, and more, and we will hear about recent archaeological findings in the city centre. The tour will end at 'Den Gode Nabo' in Bakklandet, which is this evening's pub of the night.



Photos: MJN

Organ Concert and Conference Dinner

Thursday June 21st, 18:30.

The conference dinner will be preceded by a short organ concert at 18:30 In Nidaros Cathedral offered by the Municipality of Trondheim.

Nidaros Cathedral is the world's northernmost gothic cathedral. Built from 1070 over the tomb of St. Olav, the Viking king who brought Christianity to Norway, the cathedral was completed around 1300. It houses three different organs. The main organ of Nidaros Cathedral was built by the German organ G.F. Steinmeyer and finished in 1930 for the 900th anniversary of the Battle of Stiklestad during which St. Olav died.

The conference dinner is held on Thursday June 21st at 20:00 at the Frimurerlogen, Kongens Gate 3, Trondheim. The doors will open at 19:00 and a beverages will be served before dinner. Participation to the conference dinner is included in the "standard" registration fee. Extra tickets can be purchased on the conference web site.

Photos: MJN and Frimurerlogen

The Conference Dinner is sponsored in part by High Voltage Engineering Europa.

Pubs of the Night

Following the example of our colleagues from Ottawa, we selected three pubs to meet in the evening. Each establishment proposes a different atmosphere in a different part of town. They also offer the conference participants a special discount on presentation of the conference badge.

Monday June 18th.

Kieglekroa
Located in town, Kieglekroa is the oldest pub in Trondheim where one can play sjoelbak (Dutch shuffleboard) and enjoy a good selection of beers and whisky. (https://www.kieglekroa.no/) (Photo: TripAdvisor)

Address: Kongens gate 30
Special offer: Special price and extended serving hours of their signature dish, "The Afterwork Planke", a delicious homemade hamburger with beer tasting (3 different beer).

Tuesday June 19th

Den Gode Nabo
A very charming pub with a special atmosphere in an old warehouse. Den Gode Nabo has most probably the largest beer selection (both local and international) in Trondheim. The floating terrace is a must during good summer days and provides a splendid view of Nidaros Cathedral!
https://dengodenabo.com/

Address: Øvre Bakklandet 66
Special Offer: Student prices

(Picture from lifeinnorway.net)

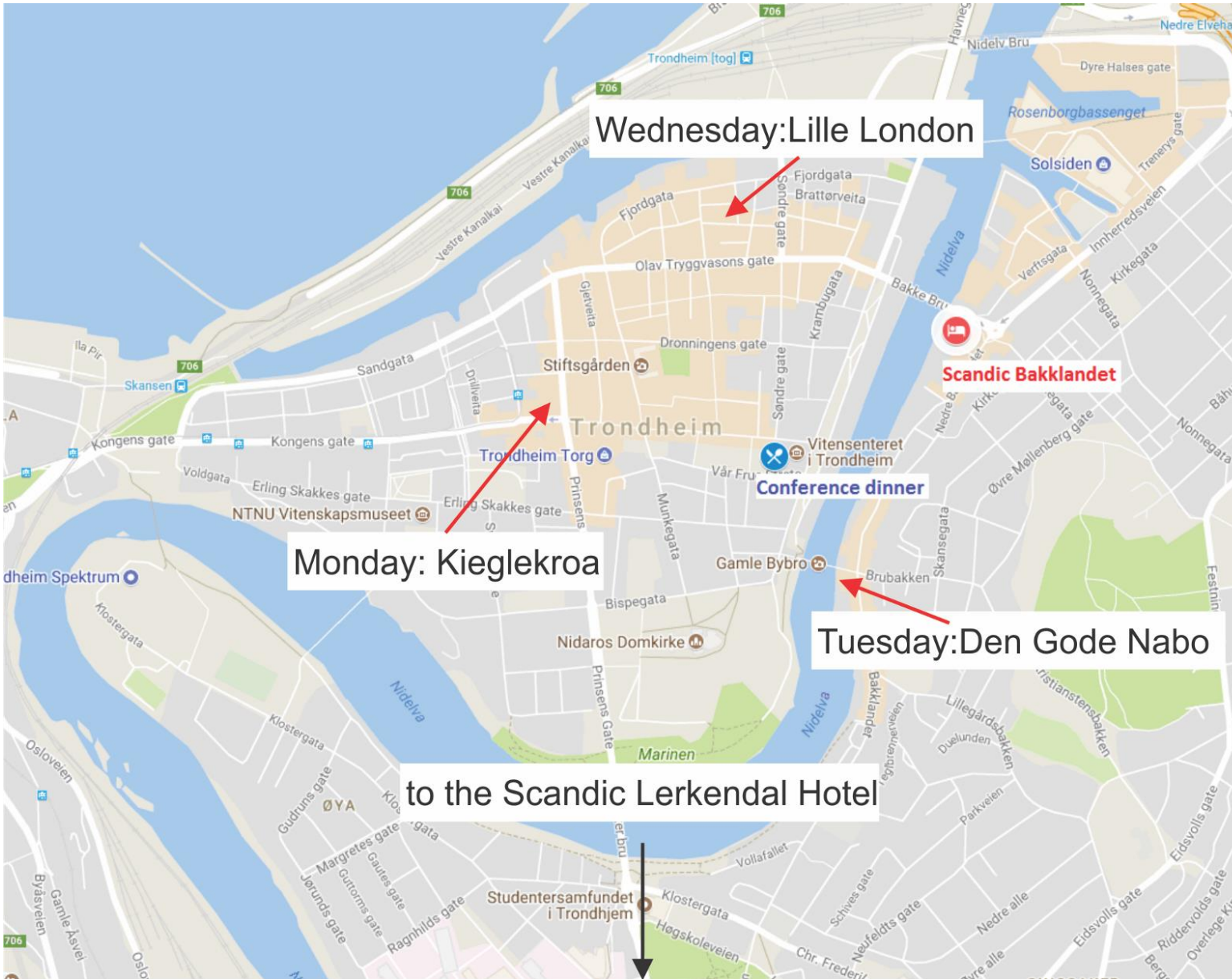
Photos: lifeinnorway.net and Den Gode Nabo

Wednesday June 20th.
Lille London

Lille London offers a Norwegian atmosphere in an English décor and a trans-Atlantic menu. A cosy and lively pub in the very heart of Trondheim with a billiard tables on the second floor. (Photo: Lille London)

Address: Carl Johans gate 10
http://www.lillelondon.no/

Special Offer: 20% rebate on food and student price on drinks.



Walk of the Night

Ladekaia is a restaurant located a bit out of town at the fjord and offers a Norwegian ambience with suitable food and drinks (http://www.ladekaia.no/)

We will have a "guided walk" from Lade kirke (easily reachable by bus 3 or 4) to Korsvika and further to Ladekaia. The path connects several viewpoints and is one of Trondheim's most popular short trips.
(Photo: Trondheim.no)

For those who do not feel like hiking, it is possible to reach the restaurant by taxi.

This event only takes place in good weather

Student Prizes

Thanks to the generous contribution of the Royal Society of Norway, we can offer two student prizes, one for oral presentations and one for poster presentations. Candidates at the Bachelor, Master, or PhD levels are eligible.

Candidates should register their presentations at the registration desk no later than Monday lunch time.

Session color scheme	
G1	General topics
M1	Developments in measurement techniques
M2	Developments in sample pretreatment
M3	Compound specific radiocarbon analysis
M4	New and updated facilities, status reports
M5	Laboratory management and organization
M6	Calibration and calibration records
M7	Statistical analysis and modelling
A1	Hydrology, limnology, oceanography, reservoir effects
A2	Terrestrial environment, sedimentology, plant, landscape etc.
A3	Climate studies
A4	Soil dynamics
A5	Archaeology
A6	Dendrochronology and single-year analysis
A7	Diet studies
A8	Anthropogenic impacts
A9	Forensic applications of radiocarbon
A11	Other radiocarbon applications
O1	Other cosmogenic nuclides

Oral Presentations Overview

Time	Sunday 17.06.2018		Monday 18.06.2018		Tuesday 19.06.2018	
08:00			Registration		Front desk	
08:30					M. Sarnthein, 302	
09:00			Opening ceremony		A. McNichol, 307	
09:30			E. Boaretto		R. Hopkins, 110	
10:00	Registration		NTNU welcoming		Coffee break	
10:30	Ionplus workshop		Coffee break		I. Carmi, 18	E. Delque-Kolic, 151
11:00			A. Bayliss, 66		R. Bhushan, 244	V. Levchenko, 92
11:30			A. Aerts-Bijma, 40		P. Grootes, 356	L. Scott Cummings, 300
12:00	Lunch	Registration	J. Vogel, 270	A. Zazzo, 222	M. Butzin, 89	M. Boudin, 19
12:30			S. Freeman, 293	N. Steuri, 146	J. Southon, 277	K. Douka, 340
13:00	Ionplus workshop	NEC workshop	M. Klein, 63	M. Kuitems, 140	G. Soulet, 137	R. Wood, 32
13:30			Lunch		Lunch	
14:00	Coffee break		M. He, 87	C. Pearson, 188	E. Keaveney, 85	L. Becerra-Valdivia, 12
14:30	Ionplus workshop		G. Prasad, 295	L. Beck, 10	S. Beaupre, 184	T. Deviese, 16
15:00			D. De Maria, 123	A. Quiles, 157	A. Sveinsjömdóttir, 41	M. Sponheimer, 301
15:30			X. Xu, 65	L. Webster, 224	J. Olsen, 268	C. Hadden, 298
16:00	Ice breaker		P. Ascough, 284	J. Regev, 207	S. Lindauer, 71	T. Omori, 329
16:30			Coffee break		Coffee break	
17:00			C. Espic, 82	M. Gran, 324	N. Frank, 355	E. Casanova, 217
17:30			Poster Session 1		N. Tisnérat Laborde, 199	T. Knowles, 246
18:00					Poster Session 1	
18:30						
19:00						
19:30						

Time	Wednesday 20.06.2018		Thursday 21.06.2018		Friday 22.06.2018	
08:00	Front desk		Front desk			
08:30	**P. Reimer, 4**		**C. Hatté, 248**		Front desk	
09:00	**A. Mouchet, 328**		**F. Miyake, 166**			
09:30	**T. Eglinton, 261**		**S. Szidat, 35**		**W. Kutschera, 61**	
10:00	Coffee break		Coffee break		**L. Wacker, 292**	
10:30	E. Bard, 250	T. Heaton, 156	A. Smith, 369	S. Kudsk, 99	Coffee break	
11:00	R. Bhushan, 230	R. Muscheler, 311	J. Rethemeyer, 102	R. Friedrich, 58	L. Hendriks, 154	T. Heaton, 257
	P. Köhler, 14	E. Queiroz Alves, 31	G. Mollenhauer, 36	A. Cherkinsky, 172	I. Hajdas, 121	M. Vibet, 275
11:30	S. Fallon, 280	M. Okuno, 352	B. Philippsen, 128	M. Dee, 149	V. Levchenko, 91	A. Neocleous, 135
12:00	P. Povinec, 238	J. Southon, 361	A. Romundset, 282	T. Jull, 145	P. Grootes, 344	A. Millard, 314
	F. Xie, 160	C. Bronk Ramsey, 130	G. Soulet, 129	G. Quarta, 88	D. Chivall, 312	C. Hamann, 96
12:30	Lunch		Lunch		Lunch	
13:00						
13:30	P. Ding, 272	A. Hogg, 34	C. Hill, 141	B. Philippsen, 228	**M. Scott, 97**	
14:00	B. Walker, 176	P. Jacobsson, 45	I. Krajcar Bronić, 174	H. Svarva, 360	**C. Bronk Ramsey, 131**	
14:30	M. Simon, 320	A. Bayliss, 220	J. Beem-Miller, 234	L. Regev, 212	**I. Hajdas, 124**	
	C. Hatté, 67	A. Sookdeo, 169	J. Heinemeier, 266	H. Shen, 17		
15:00	G. dos Santos, 165	S. Dalby, 310	C. Messager, 11	R. Patut, 164	Coffee break	
15:30	Coffee break		Coffee break			
16:00	**Poster Session 2**		**Poster Session 2**		Conference wrap up, awards, next conference, closing	
16:30						
17:00						
17:30						
18:00			**Conference dinner**			
18:30						
19:00						
19:30						

Oral Presentations

Monday June 18

Opening
Sansiro 1 9:00 - 10:00

Archaeological Chronologies: a Challenging Research Field
Elisabetta Boaretto
Weizmann Institute of Science, Rehovot, Israel.

Welcome message by Prof. Bjarne Foss, Pro-Rector for Research, NTNU

Morning Coffee
10:15 - 10:45

Plenary Session 1
Sansiro 1 10:45 - 11:45

Confessions of a Serial Polygamist: the reality of radiocarbon reproducibility in archaeological samples
Alex Bayliss
Historic England, London, United Kingdom.

Detailed uncertainty analysis based on the first year of MICADAS in an experienced AMS group.
Anita Aerts-Bijma
University of Groningen, Groningen, Netherlands.

M1 Developments in measurement techniques Sansiro 1 11:45 - 12:45	A5 Archaeology Sansiro 2 11:45 - 12:45
LASIS enhancements of C-currents from CO_2 samples *John Vogel* *University of California, Ukiah, CA, United States.*	High-precision dating of ceremonial activity around a large ritual complex in Late Bronze Age Mongolia *Antoine Zazzo* *CNRS UMR 7209 - Muséum national d'Histoire naturelle, Paris, France.*
New radiocarbon mass spectrometry *Stewart Freeman* *SUERC, East Kilbride, United Kingdom.*	Systematic radiocarbon dating of human remains from the Late Neolithic collective dolmen burial of Oberbipp (Switzerland) *Noah Steuri* *Department of Prehistory, Institute of Archaeological Sciences and Oeschger Centre for Climate Change Research (OCCR), University of Bern, Switzerland.*
HVE Sub-MV AMS based on vacuum insulated accelerators *Matthias Klein* *High Voltage Engineering Europa B.V., Amersfoort, Netherlands.*	Pivotal Sites of Early Russia Radiocarbon Dated to the Exact Year *Margot Kuitems* *Centre for Isotope Research, University of Groningen, Groningen, Netherlands.*

Lunch
12:45 - 13:55

Monday June 18

M1 Developments in measurement techniques M2 Developments in sample pretreatment Sansiro 1 13:40 - 15:20	A5 Archaeology Sansiro 2 13:40 - 15:20
The status report of AMS facility at CIAE *Ming He* *China Institute of Atomic Energy, Beijing, China.*	Can multi-species annual ^{14}C explain controversy over dating the Thera eruption? *Charlotte L. Pearson* *University of Arizona, Tucson, Arizona, United States.*
Effect of ^{12}C beam saturation on the accuracy of $\delta^{13}C$ measurements from AMS *Gurazada Prasad* *University of Georgia, Athens, GA, United States.*	Radiocarbon dating of lead carbonates to identify and date cosmetics synthesized in Antiquity *Lucile Beck* *LMC14 -LSCE, Gif sur Yvette, France.*
Developments in AMS technology for biomedical applications *Daniele De Maria* *Laboratory of Ion Beam Physics, Zurich, Switzerland.*	Going further with Egyptian Chronology : In-situ developments *Anita Quiles* *Institut français d'archéologie orientale, Cairo, France.*
Investigation on the one-tube combustion and graphitization method for preparing AMS targets from organic materials *Xiaomei Xu* *University of California, Irvine, Irvine, California, United States.*	Radiocarbon dating of Late Bronze Age sites in the Shephelah region (Israel), and a re-evaluation of synchronisations with Egypt *Lyndelle Webster* *Institute for Oriental and European Archaeology, Austrian Academy of Sciences, Vienna, Austria.*
Advances in Hydropyrolysis for ^{14}C measurement: Isolating Carbon, Reducing backgrounds, and Increasing Throughput. *Philippa Ascough* *NERC-RCF Scottish Universities Environmental Research Center, Glasgow, United Kingdom.*	Setting the Clock in Jerusalem: Radiocarbon project update, working methods and a case-study from Wilson's Arch excavations *Johanna Regev* *Weizmann Institute of Science, Rehovot, Israel.*
Afternoon Coffee 15:20 - 15:50	
M2 Developments in sample pretreatment Sansiro 1 15:50 - 16:10	A5 Archaeology Sansiro 2 15:50 - 16:10
Developing a preconcentration and purification setup for ^{14}C measurements of atmospheric methane *Christophe Espic* *Department of Chemistry and Biochemistry, University of Bern, Bern, Switzerland.*	Big site, big data - Experiences and new possibilities with big data from a field archaeologist's point of view. *Magnar Mojaren Gran* *NTNU University Museum, Department of Archaeology and Cultural History , Trondheim, Norway.*
Poster Session 1 Sansiro 3 16:10 - 18:00	
Pub of the night Kieglekroa	

Tuesday June 19

Plenary Session 2
Sansiro 1 8:30 - 10:00

The use of radiocarbon in marine paleoclimate research
Michael Sarnthein
Institut für Geowissenschaften, University of Kiel, Kiel, Germany.

The Role of the Southern Ocean in the Global Carbon Cycle
Ann P McNichol
NOSAMS/WHOI, Woods Hole, MA, United States.

Towards an absolute chronology of the Middle-Upper Palaeolithic biocultural shift along the Danube fluvial corridor
Rachel Hopkins
ORAU, University of Oxford, Oxford, United Kingdom.

Morning Coffee
Sansiro 1 10:00 - 10:30

A1 Hydrology, limnology, oceanography, reservoir effects
Sansiro 1 10:30 - 12:30

The Yarkon-Taninim aquifer (Judea Group, Israel): continuous or discontinuous – verdict by Radiocarbon
Israel Carmi
University of Tel Aviv, Tel Aviv, Israel.

Results from Accelerator Mass Spectrometer Facility from PRL-AURiS: Sedimentation rate in the Andaman basin
Ravi Bhushan
Physical Research Laboratory, Ahmedabad, Gujarat, India.

Reservoir age: A name both convenient and misleading
Pieter M. Grootes
National Laboratory for Age Determination, NTNU, Trondheim, Norway.

Marine radiocarbon reservoir age simulations for the past 50000 years
Martin Butzin
AWI Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany.

Reservoir ages for seaweeds and seagrasses along the Kelp Highway
John Southon
Earth System Science Dept, University of California, Irvine, United States.

Using stable carbon isotopes of bivalve shells to infer their radiocarbon reservoir age offset – a Black Sea case study
Guillaume Soulet
Durham University, Durham, United Kingdom.

A5 Archaeology
M2 Developments in sample pretreatment
Sansiro 2 10:30 - 12:30

Oxalate minerals for rock art dating: new developments and applications
Vladimir Levchenko
ANSTO, Lucas Heights, NSW, Australia.

Radiocarbon Dating Animal Bones: When are the Dates "Too Old"?
Linda Scott Cummings
PaleoResearch Institute, Golden, United States.

Is AAA-pretreatment sufficient to obtain reliable ^{14}C dates on food residues?
Mathieu Boudin
Royal institute of cultural heritage, Belgium.

An improved radiocarbon methodology (AOx-SC) for the reliable dating of old charcoal
Katerina Douka
Max Planck Institute for the Science of Human History, Germany.

Towards a pretreatment for radiocarbon dating of dental enamel
Rachel Wood
Australian National University, Canberra, ACT, Australia.

Radiocarbon dating the archaeological site of Anzick: the influence of sample pre-treatment chemistry
Lorena Becerra-Valdivia
Oxford Radiocarbon Accelerator Unit, University of Oxford, Oxford, Oxfordshire, UK.

Lunch
12:30 - 13:40

Tuesday June 19

A1 Hydrology, limnology, oceanography, reservoir effects Sansiro 1 13:40 - 15:20	M2 Developments in sample pretreatment Sansiro 2 13:40 - 15:20
Carbon source and production rate drive carbon sequestration in an alkaline lake eutrophic lake: analysis of bulk sediment using stepped combustion radiocarbon analysis. *Evelyn Keaveney* *Queen's Univeristy Belfast, Belfast, United Kingdom.*	Redating Palaeolithic human bones using the compound specific approach and the implications in understanding the Middle to Upper Palaeolithic transition in Eurasia *Thibaut Deviese* *ORAU, University of Oxford, Oxford, United Kingdom.*
Radiocarbon (^{14}C) constraints on the fraction of refractory dissolved organic carbon In primary marine aerosol from the Northwest Atlantic *Steven Beaupre* *Stony Brook University, Stony Brook, NY, United States of America.*	Saving old bones: a quick and non-destructive method to determine bone organic preservation *Matt Sponheimer* *University of Colorado at Boulder, Boulder, United States.*
The DIC isotopic characteristics of natural waters in Iceland. Comparison with isotope geochemical model simulations *Árný Erla Sveinbjörnsdóttir* *Institute of Earth Sciences, University of Iceland, Reykjavík, Iceland.*	Absolute dating of iron reinforcements in French gothic cathedrals *Emmanuelle Delque-kolic* *LMC14/LSCE, CEA, CNRS, Gif Sur Yvette, France.*
Longevity of the Greenland shark, Black Dogfish and Humpback whales using eye lens radiocarbon dating *Jesper Olsen* *Aarhus AMS Centre, Department of Physics and Astronomy, Aarhus University, Denmark.*	Carbon isotopes in shell carbonate and conchiolin of marsh periwinkle (*Littorina irrorata*): applications for coastal archaeology *Carla Hadden* *Center for Applied Isotope Studies, University of Georgia, Athens, Georgia, United States.*
Radiocarbon on shells as a tool for paleoclimate research – a study from SE-Arabia *Susanne Lindauer* *CEZ Archaeometrie , Mannheim, Germany.*	Extraction of high-quality ^{14}C data from terrestrial sediments containing pollen fossils: High-efficiency pollen ^{14}C analysis using next-generation cell sorter *Takayuki Omori* *Laboratory of Radiocarbon Dating, The University Museum, The University of Tokyo, Tokyo, Japan.*
Afternoon Coffee 15:20 - 15:50	
A1 Hydrology, limnology, oceanography, reservoir effects Sansiro 1 15:50 - 16:30	M2 Developments in sample pretreatment Sansiro 2 15:50 - 16:30
Radiocarbon calibration using Atlantic cold-Water corals *Norbert Frank* *Institute of Environmental Physics, Heidelberg University, Heidelberg, Germany.*	Cracked it! Dating archaeological pottery using compound-specific radiocarbon analysis (CSRA) of adsorbed lipids *Emmanuelle Casanova* *Organic Geochemistry Unit, University of Bristol, Bristol, United Kingdom.*
Radiocarbon variability in northeast Atlantic intermediate waters during the past six decades recorded in cold-water corals *Nadine Tisnérat Laborde* *LSCE/IPSL (CEA-CNRS-UVSQ), Gif-sur-yvette, France.*	Development of a novel solventless trapping system and PC-GC cleaning method for the isolation and recovery of compounds for reliable, high-precision CSRA *Timothy Knowles* *Bristol Radiocarbon AMS Facility, University of Bristol, Bristol, United Kingdom.*
Poster Session 1 Sansiro 3 16:30 - 18:00	
Pub of the night Den Gode Nabo	

Wednesday June 20

Plenary Session 3
Sansiro 1 8:30 - 10:00

A preview of the IntCal19 radiocarbon calibration curves
Paula J. Reimer
Queen's University Belfast, Belfast, UK.

Ocean ventilation and benthic-planktonic radiocarbon ages evolution over the last termination: a coupled climate model study.
Anne Mouchet
University of Liège, Liège, Belgium.

The demise, or the dawn, of the radiocarbon age in the Anthropocene?
Timothy Eglinton
ETH Zurich, Zurich, Switzerland.

Morning Coffee
10:00 - 10:30

A1 Hydrology, limnology, oceanography, reservoir effects & A8 Anthropogenic impacts Sansiro 1 10:30 - 12:30	M6 Calibration and calibration records Sansiro 2 10:30 - 12:30
Dating monospecific and single-shell benthic foraminifera samples with a gas ion source: implications for the hypothetic release of ^{14}C -depleted CO_2 from ocean mid-waters into the atmosphere *Edouard Bard* *CEREGE (AMU, CNRS, IRD, INRA, College de France), Aix-en-provence, France.*	Statistical Methodology for the IntCal19 radiocarbon calibration curves *Timothy J. Heaton* *School of Mathematics and Statistics, University of Sheffield, Sheffield, United Kingdom.*
High resolution radiocarbon dated sediment core record of nitrogen cycling in northern Arabian Sea during the last 35 ka *Ravi Bhushan* *Physical Research Laboratory, Ahmedabad, Gujarat, India.*	Comparison records and their value for improving the ^{14}C calibration curve *Raimund Muscheler* *Quaternary Sciences, Department of Geology, Lund University, Lund, Sweden.*
Using the Suess effect on the stable carbon isotope to distinguish the future from the past in radiocarbon *Peter Köhler* *Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany.*	Accounting for reservoir effects in marine radiocarbon calibration *Eduardo Queiroz Alves* *University of Oxford, United Kingdom.*
Is the dome leaking? Reconstruction of seawater ^{14}C from Porites coral outside of the Runit Island Dome *Stewart Fallon* *Australian National University, Canberra, ACT, Australia.*	Chronological significance of ^{14}C spike and precise age determination of the B-Tm Tephra, China/ North Korea *Mitsuru Okuno* *Fukuoka University, Fukuoka, Japan.*
Fifty years of atmospheric radiocarbon studies in Slovakia: NPP and fossil fuel impacts *Pavel Povinec* *Comenius University, Faculty of Mathematics, Physics and Informatics, Department of Nuclear Physics and Biophysics, Bratislava, Slovakia.*	New speleothem radiocarbon calibration records from Hulu Cave, China. *John Southon* *Earth System Science Dept, University of California, Irvine, United States.*
A comprehensive study on ^{14}C in the 10 MW High Temperature gas-cooled reactor *Feng Xie* *Institute of Nuclear and New Energy Technology, Collaborative Innovation Center of Advanced Nuclear Energy Technology, Key Laboratory of Advanced Reactor Engineering and Safety of Ministry of Education, Tsinghua University, Beijing, China.*	Reassessment of the chronology of the Lake Suigetsu 2006 record in light of new analysis of the varves and other new radiocarbon datasets *Christopher Bronk Ramsey* *University of Oxford, Oxford, United Kingdom.*

Lunch
12:30 - 13:40

Wednesday June 20

M2 Developments in sample pretreatment Sansiro 1 13:40 - 15:20	M6 Calibration and calibration records Sansiro 2 13:40 - 15:20
A modified Wet Chemical Oxidation Method for Fresh Water DOC ^{14}C analysis *Ping Ding* *Guangzhou Insititute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China.*	The influence of calibration curve construction methodology and composition on the accuracy and precision of radiocarbon wiggle-matching of tree-rings. *Alan Hogg* *University of Waikato, Hamilton, New Zealand.*
UV photochemical extraction of marine dissolved organic carbon for concentration and isotopic measurements at UC Irvine: status, surprises, and recommendations *Brett Walker* *University of California, Irvine, Irvine, CA, United States.*	Are there systematic offsets in the Northern Hemisphere tree-ring calibration data, and if so, what is their impact? *Piotr Jacobsson* *Scottish Universities Environmental Research Centre, East Kilbride, United Kingdom.*
To leach or not? A method study on sample treatment for radiocarbon dating applied during Marine Isotope Stage 3 in the Nordic Seas *Margit H. Simon* *Uni Climate, Uni Research, Bergen , Norway.*	An audit of radiocarbon measurements on Known-age Tree-rings from the Northern Hemisphere (AD 1950 – 5000 BC) *Alex Baylliss* *The University of Sheffield, United Kingdom.*
Earthworm granules, a reliable support for ^{14}C dating of Dansgaard-Oeschger events in Last glacial loess sequences *Christine Hatté* *Laboratoire des Sciences du Climat et de l'Environnement, CEA/CNRS/UVSQ, Gif-sur-yvette, France.*	High precision radiocarbon ages in the Younger Dryas *Adam Sookdeo* *Laboratory of Ion Beam Physics, ETH-Zürich, Zürich, Switzerland.*
Validation and application of radiocarbon-based source apportionment of carbonaceous aerosols with the EnCan-total-900 protocol *Guaciara M. Santos* *University of California Irvine, Irvine,, California, United States.*	Pushing research boundaries: New technologies to determine isotope ratios of bulk samples and compound specific isotope ratios *Søren Dalby* *Thermo Fisher Scientific, Hvidovere, Denmark.*

Afternoon Coffee

Conference Photo

To be taken outside the conference Centre

15:20 - 15:50

Poster Session 2
Sansiro 3 15:50 - 17:30

Thursday June 21

Plenary Session 4
Sansiro 1 8:30 - 10:00

Better understanding of the climatic and environmental factors that affect soil carbon biodegradation and stabilization
Christine Hatté
Laboratoire des Sciences du Climat et de l'Environnement - UMR 8212 CEA-CNRS-UVSQ, Gif-sur-Yvette, France.

Annual cosmic ray events shown in carbon-14 data from the BC 10th to AD 14th century
Fusa Miyake
Institute for Space-Earth Environmental Research, Nagoya University, Nagoya, Japan.

High-precision chronologies by ^{14}C wiggle matching on laminated lake sediments
Soenke Szidat
Oeschger Centre for Climate Change Research, University of Bern, Bern, Switzerland.

Morning Coffee
Sansiro 1 10:00 - 10:30

A3 Climate studies Sansiro 1 10:30 - 12:30	A6 Dendrochronology and single-year analysis Sansiro 2 10:30 - 12:30
Radiocarbon as a tracer for past and modern atmospheric oxidizing capacity and global methane budget *Andrew Smith* *Australian Nuclear Science & Technology Organisation*	New annual radiocarbon measurements based on oak from the Danish Dendrochronology *Sabrina G. K. Kudsk* *Institute for Geoscience, Aarhus University, Høegh-Guldbergs Gade 2, DK-8000 Aarhus C, Denmark.*
Will ancient C in deep permafrost deposits be quickly respired upon thaw? *Janet Rethemeyer* *University of Cologne, Cologne, Germany.*	Two high resolution ^{14}C tree-ring records of the 4th and 5th century AD: applications for archaeology, astrophysics and dendrochronology *Ronny Friedrich* *CEZA, Mannheim, Germany.*
No evidence for 20th century acceleration in mobilization of fossil carbon from thawing permafrost in the Lena River catchment *Gesine Mollenhauer* *Alfred Wegener Institute, Bremerhaven, Germany.*	Is there any evidence for atmospheric ^{14}C offset within the Northern Hemisphere? Searching for an answer in massive bald cypress deposits in the Southeastern U.S. *Alexander Cherkinsky* *University of Georgia, Athens, GA, United States.*
Carbon sequestration in a re-established wetland *Bente Philippsen* *Aarhus AMS Centre, Department of Physics and Astronomy, Aarhus University, Aarhus, Denmark.*	From decadal to annual: Examining the substructure of the Calibration Curve *Michael Dee* *Centre for Isotope Research, University of Groningen, Groningen, Netherlands.*
Sea-level changes after the last ice age, constrained by radiocarbon dated lake deposits in South Norway *Anders Romundset* *NGU, Trondheim, Norway.*	Structure of carbon-14 excursions in tree-rings at 800BC *A J Timothy Jull* *University of Arizona, Dept. of Geosciences, Tucson, Arizona, USA.*
Seasonal changes in the flux and source of CO_2 released during oxidative weathering of sedimentary rocks investigated using stable carbon isotopes and radiocarbon *Guillaume Soulet* *Durham University, Durham, United Kingdom.*	Radiocarbon dating of the oldest living tree in Europe: methodology, results, and opportunities *Gianluca Quarta* *CEDAD (Centre for Dating and Diagnostics), Department of Mathematics and Phyiscs "Ennio De Giorgi", University of Salento, , Lecce, Italy.*

Lunch
12:30 - 13:40

Thursday June 21

A4 Soil dynamics Sansiro 1 13:40 - 15:20	A6 Dendrochronology and single-year analysis Sansiro 2 13:40 - 15:20
The application of sedimentary Geology, Geochemistry, and Geochronology to interpret radiocarbon dates of Quaternary Fossils and stratigraphic sequences *Christopher Hill* *Boise State University, Boise, United States.*	A calibration curve based on annual samples, applied to radiocarbon dates from the oldest town in Scandinavia *Bente Philippsen* *Centre for Urban Network Evolutions (UrbNet), Aarhus University, Højbjerg, Denmark.*
Reconstruction of the karst Quaternary environment in Croatia based on radiocarbon results *Ines Krajcar Bronić* *Ruđer Bošković Institute, Zagreb, Croatia.*	The 1952-1965 rise in atmospheric bomb ^{14}C in a Trondheim tree *Helene Løvstrand Svarva* *National Laboratory for Age Determination, NTNU, Trondheim, Norway.*
From Fractions to Fluxes: The International Soil Radiocarbon Database (ISRaD) *Jeffrey Beem-Miller* *Dept. of Biogeochemical Processes, Max Planck Institute for Biogeochemistry, Jena, Germany.*	Olive wood research at the D-REAMS Laboratory: verified annual signal, circumference sectors growth, and cross-section complexity *Lior Regev* *Weizmann Institute of Science, Rehovot, Israel.*
Preparation of bulk mortar samples and lime lumps for radiocarbon dating. Sequential dissolution of fine-grained material with phosphoric acid *Jan Heinemeier* *AMS Centre, Department of Physics and Astronomy, University of Aarhus, Aarhus, Denmark.*	Study on radiocarbon dating of Chinese ancient tea trees *Hongtao Shen* *Guangxi Normal University, Guilin, Guangxi, China.*
Lead white preparation for dating painting *Cyrielle Messager* *LMC14 - LSCE, Gif-sur-Yvette, France.*	Main results of thirteen years of radiocarbon investigation of large and old African baobab trees *Roxana T. Patrut* *Babes-Bolyai University, Faculty of Biology and Geology, Cluj-Napoca, Romania.*
Afternoon Coffee 15:20 - 15:50	
Poster Session 2 Sansiro 3 15:50 - 17:30	
Organ Concert and Conference dinner 18:30	

Friday June 22

Plenary Session 5
Sansiro 1 9:20 - 10:20

The half-life of ^{14}C - why is it so long?
Walter Kutschera
VERA Laboratory, Faculty of Physics, Isotope Research and Nuclear Physics, University of Vienna, 1090 Vienna, Austria.

Annually resolved atmospheric radiocarbon concentrations for the last 1000 years reconstructed from tree-ring records
Lukas Wacker
Laboratory of Ion Beam Physics, ETH Zurich, Zurich, Switzerland.

Morning Coffee
10:20 - 10:50

A9 Forensic applications of radiocarbon Sansiro 1 10:50 - 12:30	M7 Statistical analysis and modelling Sansiro 2 10:50 - 12:30
Selective dating of paint components: ^{14}C dating of lead white *Laura Hendriks* *Laboratory of Ion Beam Physics, ETH-Zürich, Zürich, Switzerland.*	**Calibrating and summarising multiple radiocarbon determinations: A rigorous alternative to summed probability density functions** *Tim Heaton* *School of Mathematics and Statistics, Sheffield, United Kingdom.*
Radiocarbon dating of paintings attributed to T'ang Haywen (1927-1991) *Irka Hajdas* *LIP ETH Zurich, Zurich, Switzerland.*	**Exploring the rhythms of occurrences of archaeological events in different geographic areas** *Marie-Anne Vibet* *Laboratoire de mathématiques, Université de Nantes, Nantes, France.*
Studying human kidney stones using the radiocarbon bomb pulse *Vladimir Levchenko* *ANSTO, Lucas Heights, NSW, Australia.*	**Signal processing for the identification of Miyake Events** *Andreas Neocleous* *Center of Isotope Research, University of Groningen, Groningen, The Netherlands.*
Turnover rate in human bone and tissue: a "live" study *Pieter M. Grootes* *National Laboratory for Age Determination, NTNU, Trondheim, Norway.*	**Wigglematch dating on humans? Dating the Scottish soldiers in Durham** *Andrew Millard* *Durham University, Durham, United Kingdom.*
Identifying fraud in the EU worked-ivory antiques trade *David Chivall* *Oxford Radiocarbon Accelerator Unit, University of Oxford, United Kingdom.*	**Dating cultural change in the Hallstatt period – a wiggle match of human bone radiocarbon ages** *Christian Hamann* *Leibniz-Laboratory for Radiometric Dating and Isotope Research, Kiel University, Germany.*

Lunch
12:30 - 13:40

Friday June 22

Plenary Session 6
Sansiro 1 13:40 - 15:10

Life after SIRI- where next?
Marian Scott
University of Glasgow, Glasgow, United Kingdom.

The importance of open access to chronological information: the IntChron initiative
Christopher Bronk Ramsey
University of Oxford, Oxford, United Kingdom.

Radiocarbon analysis and the protection of cultural heritage—our concerns, problems and proposed solutions
Irka Hajdas
LIP ETH Zurich, Zurich, Switzerland.

Afternoon Coffee
15:10 - 15:40

Closing Session
Sansiro 1 15:40 - 16:30

Walk of the night

Ladekaia

Poster Session 1 Overview

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330 M-J. Nadeau	2	278 B. Longworth	206 K. Sasa	2	21 K. Dong	286 C. Telloli	2	336 M. Diaz Castro	163 G. De Mulder	2	13 P. Richardin	64 I. Chanca	2	189 N. Toshio
219 A. Pesonen	3	127 G. Salazar	202 H. Meijer	3	122 M. Gierga	81 H. Jeon	3	253 C. Hadden	306 N. Tisnérat Laborde	3	265 P. Barta	109 R. Hopkins	3	182 N. Fukuyo
249 S. Zhu	4	254 L. Calcagnile	289 S. Chopra	4	326 M. Seiler	23 J. Lefevre	4	15 P. Fago	132 S. Hirabayashi	4	262 D. Michalska	126 B. Philippsen	4	84 M. Huels
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9 Y. Fu	7	107 J. Nordby	51 H. Li	7	333 B. Culleton	62 N. Haghipour	7	316 K. Macario	210 T. Aramaki	7	111 J. Kaizer	179 D. Kunikita	7	118 F. Peng
22 K. Dong	8	49 Q. Hua	52 Q. Liu	8	93 F. Bertuch	263 Z. Cheng	8	208 T. Nakanishi	185 Y. Yokoyama	8	173 G. De Mulder	148 M. Krąpiec	8	181 N. Kessler
27 W. Zhou	9	345 P. Steier	321 T. Campos	9	351 J. Olsen	38 H. Grotheer	9	308 M. Oliveira	354 C. Connolly	9	139 J. Frolík	348 J. Olsen	9	108 M. Martínez Carrillo
303 Y. Guan	10	86 Y. Pang	337 K. Mizohata	10	235 N. Piotrowska	251 M. Uchida	10	7 K. Allen	252 M. Uchida	10	350 J. Olsen	44 P. Jacobsson	10	143 C. Solis
	11	335 E. Værnes	247 T. Knowles	11		297 K. Loftis	11	29 Ž. Ežerinskis	77 R. Maring	11	213 C. Lubritto	117 G. Hodgins	11	274 M. Rodríguez-Ceja
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Session color scheme

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M1	Developments in measurement techniques
M2	Developments in sample pretreatment
M3	Compound specific radiocarbon analysis
M4	New and updated facilities, status reports
M5	Laboratory management and organization
M6	Calibration and calibration records
M7	Statistical analysis and modelling
A1	Hydrology, limnology, oceanography, reservoir effects
A2	Terrestrial environment, sedimentology, plant, landscape etc.
A3	Climate studies
A4	Soil dynamics
A5	Archaeology
A6	Dendrochronology and single-year analysis
A7	Diet studies
A8	Anthropogenic impacts
A9	Forensic applications of radiocarbon
A11	Other radiocarbon applications
O1	Other cosmogenic nuclides

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Poster Session 1

Poster Row 1A

1A-01 Humic substances-their history in the radiocarbon inter-comparisons studies.
Philip Naysmith et al.
SUERC, East Kilbride, United Kingdom.

1A-02 A database at the heart of a radiocarbon measurement facility.
Marie-Josée Nadeau
National Laboratory for Age Determination, NTNU, Trondheim, Norway.

1A-03 Recent advancements in quality and information management in Laboratory of Chronology
Antto Pesonen & Markku Oinonen
University of Helsinki, Finnish Museum of Natural History, Helsinki, Finland.

1A-04 Homogenization of Chinese sugar carbon standard for AMS ^{14}C measurement
Sanyuan Zhu et al.
State Key Laboratory of Organic Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China.

1A-05 Determination of the ^{14}C Blank at the National Ocean Sciences AMS Laboratory, WHOI
Mark Roberts et al.
National Ocean Sciences AMS Laboratory, Woods Hole Oceanographic Institution, Woods Hole, United States.

1A-06 Issues in the use of synthetic diamonds for routine radiocarbon analysis
R E Taylor
University of California, Irvine, United States.

1A-07 Study of ^{10}Be/ ^{7}Be in rainwater from Xi'an by Accelerator
Mass Spectrometry
Yunchong Fu et al.
Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China.

1A-08 The application exploration for AMS measurement of Al-26 and Be-10 in deep-sea ferromanganese crusts
Kejun Dong
Tianjin University, Tianjin, China.

1A-09 Paleoprecipitation reconstruction on the Chinese Loess Plateau using ^{10}Be
Weijian Zhou & Yizhi Zhu
Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China.

1A-10 Accelerator mass spectrometry analysis of ^{237}Np in environment samples
Yongjing Guan et al.
Guangxi University, Nanning, China.

Poster Row 1B

1B-01 Improving the Cs sputtering efficiency by changing cathode geometry of the ion source
Kilho Sung et al.
University of Science and technology, South Korea.

1B-02 Development of a hybrid gas ion source and gas inlet systems at NOSAMS
Brett Longworth et al.
Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, United States.

1B-03 Mathematical model for CO_2 mass flow during pulse gas continuous-flow injection using a low-budget interface that couples an elemental analyser with a MICADAS AMS
Gary Salazar & Soenke Szidat
University of Bern, Dept. of Chemistry and Biochemistry, Switzerland.

1B-04 Improved performances and routine applications of the gas-accepting ion source at CEDAD
Lucio Calcagnile et al.
CEDAD (Centre for Dating and Diagnostics)-Department of Mathematics and Physics "Ennio de Giorgi"-University of Salento, Lecce, Italy.

1B-05 Exploring sample size limits of AMS gas ion source $^{14}CO_2$ analysis
Jan Melchert et al.
Org. Geochemistry and Radiocarbon Dating - University of Cologne, Germany.

1B-06 Improvements in the measurement of small $^{14}CO_2$ samples at CologneAMS
Alexander Stolz et al.
Institute for Geology and Mineralogy, University of Cologne, Cologne, Germany.

1B-07 The Effect of Sample Mass and Iron-to-Carbon Ratio on Radiocarbon Measurements at the University of Arizona AMS Facility
Jessica Nordby et al.
University of Arizona AMS Laboratory, Tucson, Arizona, United States.

1B-08 Direct AMS ^{14}C Analysis of Carbonate
Quan Hua et al.
Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW, Australia.

1B-09 Radiocarbon AMS optimized for high throughput
Peter Steier
University of Vienna - Faculty of Physics, Vienna, Austria.

1B-10 Development of ^{14}C measurement with home-made AMS system at CIAE
Yijun Pang et al.
China Institute of Atomic Energy, Beijing, China.

1B-11 Comparison of $\delta^{13}C$ measurements from IR-MS and AMS
Einar Værnes et al.
National Laboratory for Age Determination, NTNU, Trondheim, Norway.

1B-12 A Compact Ionization Chamber for the detection of 300 keV ^{14}C ions from a single-stage accelerator mass spectrometer (SSAMS)
Keith Fifield et al.
Dept. of Nuclear Physics, Research School of Physics and Engineering, The Australian National University, Canberra, Australia.

Poster Row 2A

2A-01 LASIS enhancements of C^- currents from CO_2 samples
John Vogel
University of California (retired), Ukiah, CA, United States.

2A-02 Performance of the new Tsukuba 6 MV AMS facility for radiocarbon dating
Kimikazu Sasa et al.
University of Tsukuba, Tsukuba, Ibaraki, Japan.

2A-03 The all-new radiocarbon measurement facility at the Center for Isotope Research, University of Groningen.
Harro A. J. Meijer et al.
Center for Isotope Research, University of Groningen, Groningen, Netherlands.

2A-04 A new accelerator mass spectrometry facility for ^{14}C, ^{10}Be and ^{26}Al dating at Inter University Accelerator Centre (IUAC), New Delhi, India
Sundeep Chopra et al.
Inter University Accelerator Centre,Aruna Asaf Ali Marg, New Delhi, India.

2A-05 First year of routine measurements at the AWI MICADAS ^{14}C dating facility.
Torben Gentz et al.
AWI-Bremerhaven, Bremerhaven, Germany.

2A-06 New Installation of AMS at Dongguk University
Sang-Hun Lee et al.
Dongguk University, Gyeongju-si, Gyeongsangbuk-do, South Korea.

2A-07 Introduction of the NTUAMS Lab and its performance
Hong-Chun Li et al.
Department of Geosciences, National Taiwan University, Taipei, Taiwan.

2A-08 A new AMS laboratory at Beijing Normal University in China
Qi Liu et al.
Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China.

2A-09 New graphitization facility at CENA-USP
Thiago Campos et al.
CENA-USP, Piracicaba, SP, Brazil.

2A-10 Development of the gas injection system of Helsinki AMS
Kenichiro Mizohata et al.
University of Helsinki, Helsinki, Finland.

2A-11 Development and validation of sample preparation methods at the Bristol Radiocarbon AMS Facility
Timothy Knowles et al.
Bristol Radiocarbon AMS Facility, University of Bristol, Bristol, United Kingdom.

Poster Row 2B

2B-01 ARTEMIS, the ^{14}C AMS Facility of the LMC14 national laboratory – Status report
Christophe Moreau et al.
Laboratoire de Mesure du Carbone 14 (LMC14), LSCE/IPSL, CEA-CNRS-UVSQ, Université Paris-Saclay, Gif-sur-Yvette, France.

2B-02 Progress in XCAMS at Tianjin University
Kejun Dong et al.
Tianjin University, Tianjin, China.

2B-03 Progress report and methodical improvements in the radiocarbon analysis at the CologneAMS facility
Merle Gierga et al.
Institute of Geology and Mineralogy - University of Cologne, Germany.

2B-04 Status report of the Trondheim radiocarbon laboratory
Martin Seiler et al.
National Laboratory for Age Determination, NTNU, Trondheim, Norway.

2B-05 On the quality of SUERC radiocarbon measurement
Stewart Freeman et al.
SUERC, East Kilbride, United Kingdom.

2B-06 ENEA ^{14}C laboratory update
Chiara Telloli et al.
ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Bologna, Italy.

2B-07 The Penn State University AMS ^{14}C Facility: Initial Operation and Performance
Brendan Culleton & Douglas Kennett
Pennsylvania State University, University Park, Pennsylvania, United States.

2B-08 ANSTO Radiocarbon Laboratory: A status report
Fiona Bertuch et al.
ANSTO, Lucas Heights, NSW, Australia.

2B-09 Status report of the Aarhus 1MV HVEE Tandetron
Jesper Olsen
Aarhus University, Denmark.

2B-10 50 years of the Gliwice Radiocarbon Laboratory (AD 1967-2017)
Natalia Piotrowska et al.
Silesian University of Technology, Institute of Physics-CSE, Department of Radioisotopes, Gliwice, Poland.

Poster Row 3A

3A-01 Determination of biogenic fraction in Polyethylene plastic bags: monitoring the production process
Juliana Santos et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

3A-02 Evolution of IERs
Chiara Telloli et al.
ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Bologna, Italy.

3A-03 Synthesis of Poly(arylene ether)s from Biomass-derived Isosorbide and Characterization of Biomass-content using Accelerator Mass Spectrometry (AMS)
Hyeonyeol Jeon et al.
Korea Research Institute of Chemical Technology, Ulsan, South Korea.

3A-04 Use of the radiocarbon activity deficit in vegetation as a sensor of CO_2 soil degassing: example from La Solfatara (Naples, Southern Italy)
Jean-Claude Lefevre et al.
Université Lyon, CNRS, ARAR UMR5138, Lyon, France.

3A-05 Sampling $^{14}CO_2$ as a tracer for hydrocarbon biodegradation: Making AMS target material in the field
Lindsay Reynolds et al.
University of Ottawa, Ottawa, Ontario, Canada.

3A-06 ^{14}C and deep sea volcanic processes: the Mid Atlantic Ridge at 14° North
Mark Kurz et al.
NOSAMS/Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, United States.

3A-07 Online compound specific Radiocarbon analysis (CSRA): Analytical challenges
Negar Haghipour et al.
Geological Institute, ETHZ, Sonneggstrasse 5, 8092 Zurich, Switzerland, Zurich, Switzerland.

3A-08 Compound specific radiocarbon analysis (CSRA) of fatty acids and n-alkanes in a city aerosol sample
Zhineng Cheng et al.
State Key Laboratory of Organic Geochemistry,Guangzhou Institute of Geochemistry,Chinese Academy of Sciences , Guangzhou, China.

3A-09 Compound specific radiocarbon analysis at the AWI-MICADAS facility
Hendrik Grotheer et al.
Alfred Wegener Institute, Bremerhaven, Germany.

3A-10 Evidence for microbial assimilation of ancient organic carbon during moraine-debris weathering in Glacier foreland, Ny-Ålesund: Implications from radiocarbon analysis of phospholipid fatty acids (PLFAs)
Masao Uchida et al.
National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan.

3A-11 Purification of conchiolin for radiocarbon and stable isotope analysis
Kathy M. Loftis et al.
Center for Applied Isotope Studies, University of Georgia, Athens, Georgia, United States.

3A-12 Correction model for complex deep marine environments at cold seep vents off Tokai, Japan: Seawater DIC acquisition by Calpyptogena sp. bivalves
Kazuhiro Yagasaki et al.
AORI, The University of Tokyo, Kashiwa, Japan.

3A-13 Origin of water masses in the western Coral Sea based on radiocarbon
Aymeric Servettaz et al.
Atmosphere and Ocean Research Institute, the University of Tokyo, Kashiwa, Japan.

Poster Row 3B

3B-01 The Northern Pacific ΔR estimates: new data and synthesis
Bulat Khasanov et al.
Severtov Institute of Ecology and Evolution of Russian Academy of Sciences, Moscow, Russian Federation.

3B-02 Radiocarbon marine reservoir effect on the North-Eastern and southern coasts of Cuba
Maikel Diaz Castro et al.
Instituto de Física, Universidade Federal Fluminense, Niteroi, RJ, Brazil.

3B-03 Marine reservoir effects in eastern oyster (Crassostrea virginica) from southwestern Florida, USA
Carla S. Hadden & Margo Schwadron
Center for Applied Isotope Studies, University of Georgia, Athens, Georgia, United States.

3B-04 Estimation of the reservoir age in the Mar Piccolo basin in Taranto (Southern Italy) by AMS ^{14}C dating on Cerastoderma glaucum (Poiret, 1789)
Paola Fago et al.
Department of Earth and geo environmental Sciences, University of Bari Aldo Moro, Bari, Italy.

3B-05 Radiocarbon age offsets of plant and shell in the Holocene sediments from the Sukumo plain, southwest coast of Shikoku, Japan
Toshimichi Nakanishi et al.
Kyoto Univ., Beppu, Japan.

3B-06 Marine radiocarbon reservoir correction for the Southern Marshall Islands for the past 2500 years
Quan Hua et al.
Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW, Australia.

3B-07 Temporal Variation of the Marine Reservoir Effect on the Coast of Rio de Janeiro
Kita Macario et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

3B-08 Radiocarbon age offsets of plant and bioclast in the Holocene sediments from the Miyazaki plain, southeast coast of Kyushu, Japan
Toshimichi Nakanishi et al.
Kyoto University, Beppu, Japan.

3B-09 Coral Based Marine Reservoir Corrections for the Brazilian Northern Coast.
Maria Isabela Oliveira et al.
Universidade Federal Fluminense, Niterói, Rio de Janeiro, Brazil.

3B-10 An investigation into ^{14}C offsets in modern mollusc shell and flesh from Irish coasts
Kerry Allen et al.
14Chrono Centre, Queen's University Belfast, United Kingdom.

3B-11 Tracing ^{14}C variation in the lake sediments caused by environmental factors
Žilvinas Ežerinskis et al.
Center for Physical Sciences and Technology, Vilnius, Lithuania.

3B-12 Freshwater reservoir effect within Eastern Fennoscandia
Markku Oinonen
Finnish Museum of Natural History, University of Helsinki, Helsinki, Finland.

3B-13 Using natural and engineered recharge end members to examine how water source impacts carbon cycling in groundwater in the Los Angeles coastal basin
Jennifer Walker et al.
University of California Irvine, California, United States.

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4A-01 The 'Old Wood' effect: Questions about the accuracy of radio-carbon dating at the Chudov Monastery, within the grounds of the Moscow Kremlin
Asya Engovatova
Institute of Archaeology Russian Academy of Sciences, Moscow, Russian Federation.

4A-02 ^{14}C-dating of wooden buildings in Belgium. A problem of reliability?
Guy De Mulder et al.
Ghent University, Gent, België.

4A-03 Radiocarbon distribution in the North Atlantic from GEOVIDE cruise in May-June 2014 and its comparison with historic data sets
Nadine Tisnérat Laborde et al.
LSCE (CEA-CNRS-UVSQ), Gif-sur-yvette, France.

4A-04 Seasonal bomb-^{14}C variability recorded in the coral from the northwest part of the Luzon Island, Philippines
Shoko Hirabayashi et al.
Atmosphere and Ocean Research Institute, The University of Tokyo, Kashiwa, Chiba, Japan.

4A-05 North Atlantic Ocean ^{14}C bomb-pulse data from cod otoliths
Jesper Olsen et al.
Aarhus AMS Centre, Department of Physics and Astronomy, Aarhus University, Denmark.

4A-06 North Pacific bomb-^{14}C record reconstructed from long-lived bivalve shells and its application
Kaoru Kubota et al.
JAMSTEC, Kochi, Japan.

4A-07 Variations of surface radiocarbon of the North Pacific in summer season during the past decade
Takafumi Aramaki et al.
National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan.

4A-08 North Pacific surface water radiocarbon recorded in abalone obtained from Otsuchi bay, Japan
Yusuke Yokoyama et al.
Atmosphere and Ocean Research Institute, The University of Tokyo, Japan.

4A-09 Tracing terrestrial sources of dissolved organic carbon in an Arctic lagoon ecosystem using Ramped PyrOx
Craig Connolly et al.
The University of Texas at Austin, Marine Science Institute , Port Aransas, Texas, United States.

4A-10 The trans-Arctic water sections radiocarbon inventory for reconstruction of surface-mid-deep water ventilation ages
Masao Uchida et al.
National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan.

4A-11 Recalibration of Human Individuals from the Danish Mesolithic-Neolithic Transition
Rikke Maring & Bente Philippsen
Department of Archaeology and Heritage Studies, Aarhus University, Denmark.

4A-12 Combined radiocarbon and anthropological studies on prehistoric human remains from the "Tecchia di Equi" cave in Northern Tuscany
Mariaelena Fedi et al.
INFN Sezione di Firenze, Italy.

4A-13 New radiocarbon dating results from the Upper Paleolithic levels in Grotta Romanelli-Italy
Lucio Calcagnile et al.
CEDAD (Centre for Dating and Diagnostics), Department of Mathematics and Phyiscs "Ennio De Giorgi", University of Salento, Lecce, Italy.

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4B-01 Radiocarbon dating of St. George´s rotunda in Nitrianska Blatnica, Slovakia: Consortium results
Pavel Povinec et al.
Comenius University, Department of Nuclear Physics and Biophysics, Bratislava, Slovakia.

4B-02 Radiocarbon dating of Relics and Reliquaries - The case of the ecclesiastical treasure from Chapter St. Aldegonde of Maubeuge (France)
Pascale Richardin & Raphaël Coipel
Centre de recherche et de restauration des musées de France C2RMF, Paris, France.

4B-03 Embroidered epitrachelion from St. Elisabeth's Cathedral in Košice (Slovakia) dates to 15th century
Peter Barta et al.
Department of Archeology, Comenius University in Bratislava, Slovakia.

4B-04 Royal castle from Poznań- Comparison of mortar and bricks dating
Danuta Michalska et al.
Institute of Geology, Adam Mickiewicz University, Poznań, Poland.

4B-05 Radiocarbon dating of mortar: Case study of the Aqueduct in Skopje
Andreja Sironić et al.
Ruđer Bošković Institute, Zagreb, Croatia.

4B-06 Modelling time - Applying Bayesian statistics to the chronology of a medieval urban site in Denmark
Kirstine Haase & Jesper Olsen
Centre for Urban network Evolutions, Aarhus University, Aarhus, Denmark.

4B-07 Update on the absolute chronology of the migration period in central Europe (375-568 AD): new data from Maria Ponsee, lower Austria
Jakub Kaizer et al.
Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovakia.

4B-08 CRUMBEL: Cremations, Urns and Mobility – Ancient population dynamics in Belgium
Guy De Mulder et al.
Ghent University, Gent, Belgium.

4B-09 Early Medieval Ducal Graves K1 and K2 at Prague Castle (Czech Republic)
Jan Frolík & Ivo Svetlik
Institute of Archaeology Prague, Czech Republic.

4B-10 The chronology of two medieval cemeteries in central Copenhagen –Bayesian modelling and archaeological relative age information
Jesper Olsen et al.
Aarhus University, Denmark.

4B-11 Chronological reconstruction and dietary habit of the copper archaeological site of Selvicciola (Viterbo, Italy)
Carmine Lubritto et al.
Dep. Environmental Science & Technologies Univ. Campania, Caserta, Italy.

4B-12 Radiocarbon dating in Protohistorical and Classical archaeology: the Monte Bernorio case study
Ricardo Fernandes et al.
Department of Archaeology, Max Planck Institute for the Science of Human History, Jena, Germany.

4B-13 ^{14}C-Dating of the Late Bronze Age city Hala Sultan Tekke, Cyprus
Eva Maria Wild et al.
University of Vienna, Faculty of Physics, Isotope Research and Nuclear Physics, VERA-Laboratory, Währinger Str. 17, AT-1090 Vienna, Austria.

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5A-01 To date or not to date? Do radiocarbon dates on charred food crust reflect time of food preparation?
Linda Scott Cummings et al.
PaleoResearch Institute, United States.

5A-02 Discussing the dietary patterns of indigenous groups in Cerritos through the stable isotope analysis
Ingrid Chanca et al.
Laboratório de Radiocarbono - Universidade Federal Fluminense, Niterói, Rio de Janeiro, Brazil.

5A-03 Less is more – Reducing artefact damage through integrating ZooMS into the radiocarbon dating process
Rachel Hopkins et al.
ORAU, University of Oxford, Oxford, United Kingdom.

5A-04 Approaches to determine reservoir effects in elk/moose
Bente Philippsen
Aarhus AMS Centre, Aarhus University, Aarhus, Denmark.

5A-05 δ^{13}C values of wood and charcoal reveal broad isotopic ranges at the base of the food web
Bente Philippsen et al.
Museum Lolland-Falster, Rødbyhavn, Denmark.

5A-06 Chronological challenges to understanding the earliest farming communities in SW Asia
Piotr Jacobsson
Scottish Universities Environmental Research Centre, East Kilbride, UK

5A-07 Dating charred remains on pottery and analysing food habits in the Paleometal period in Lower Amur Basin, Russia
Dai Kunikita et al.
The University of Tokyo, Tokyo, Japan.

5A-08 The nature of Hallstatt-period cultural transformation in the north of Central Europe in light of radiocarbon dating of the Late Bronze Age stronghold at Łubowice near Racibórz, SW Poland
Marek Krąpiec & Jan Chochorowski
AGH-University of Science and Technology, Krakow, Poland.

5A-09 Bronze Age human activity inferred from 'cocking stone' pits, southern Jutland, Denmark
Jesper Olsen et al.
Aarhus University, Denmark.

5A-10 Seeing through the Hallstatt plateau at Loch Tay Scotland.
Piotr Jacobsson et al.
Scottish Universities Environmental Research Centre, East Kilbride, United Kingdom.

5A-11 Radiocarbon measurements on a charred olive tree from Therasia, Greece
Gregory Hodgins et al.
AMS Laboratory, University of Arizona, Tucson, Arizona, United States.

5A-12 Chronology of the origin and early dispersal of opium poppy in Europe
Aurélie Salavert et al.
CNRS - MNHN, Paris, France.

5A-13 Radiocarbon dating and Bayesian modelling in Jerash/Gerasa, Jordan
Bente Philippsen et al.
Centre for Urban Network Evolutions (UrbNet), Aarhus University, Denmark.

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5B-01 A refined chronology for caves 268, 272 and 275 in the Dunhuang Mogao grottoes utilising a Bayesian statistical framework
Richard Staff et al.
University of Glasgow, United Kingdom.

5B-02 Radiocarbon dating of the medieval silk costumes from Ryukyu Islands, Japan
Nakamura Toshio et al.
Nagoya University, Nagoya, Japan.

5B-03 AMS Dating of wooden sculptures from a Shinto shrine in Akita, Japan
Naoto Fukuyo et al.
Atmosphere and Ocean Research Institute, The University of Tokyo, Japan.

5B-04 Absolut dating of early iron objects from the ancient Orient: Radiocarbon dating of Luristan Iron Mask Swords
Matthias Huels et al.
Leibniz-Laboratory for Radiometric Dating and Isotope Research, Kiel University, Kiel, Germany.

5B-05 Radiocarbon dating of ancient textiles owned by the Kyoto University Museum.
Misao Yokoyama et al.
Kyoto University, Japan.

5B-06 Dating the ages of ancient calligraphy fragments attributed to important persons in Japanese history: Nakatomi no Kamatari, Ono no Tōfū, Saigyō, and Retired Emperor Gotoba
Hirotaka Oda et al.
ISEE, Nagoya University, Nagoya, Aichi, Japan.

5B-07 Dating the Chinese Late Paleolithic at Shuidonggou Locality 2
Fei Peng et al.
Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing, China.

5B-08 A Radiocarbon Dating Study of Montezuma Castle
Nicholas Kessler et al.
Laboratory of Tree Ring Research, University of Arizona, Tucson, Arizona, United States.

5B-09 ^{14}C AMS dating of first settlements in northern desert of Mexico: The Cave of the Antlers, Cuatro Cienegas, Coahuila, Mexico
Miguel Ángel Martínez Carrillo et al.
Faculty of Sciences at the National Autonomous University of Mexico (UNAM), Mexico.

5B-10 AMS ^{14}C dating of the first occupations of the Ciudadela, Teotihuacan, Mexico.
Corina Solís et al.
Institute of Physics, UNAM, Mexico City, Mexico.

5B-11 Radiocarbon Dating of human remains from El Gigante Cave in Chihuahua Mexico
María Rodríguez-Ceja et al.
Institute of Physics. National Autonomous University of Mexico, Mexico City, Mexico.

5B-12 The use of anthracology and Bayesian models of radiocarbon dated charcoal to establish the occupation chronology of two archaeological shellmounds on the Guanabara Bay, Rio de Janeiro, Brazil
Bruna Pereira et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

5B-13 Rock art in ancient Puerto Rico: A chronological assessment
Reniel Rodrigues Ramos & Alexander Cherkinsky
Universidad de Puerto Rico, Recinto de Utuado, Puerto Rico, United States.

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A8	Anthropogenic impacts
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Poster Session 2

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1A-01 Improvements to dissolved organic carbon extraction methods using chemical and UV oxidation and long-term measurements of DIC/DOC in an ephemeral fresh-water stream in Southern Arizona
Timothy Jull et al.
University of Arizona, Dept. of Geosciences, Tucson, Arizona, USA.

1A-02 The Preparation of Water (DIC, DOC) and Gas (CO_2, CH4) Samples for Radiocarbon Analysis at AEL-AMS, Ottawa, Canada
Sarah Murseli et al.
A.E. Lalonde AMS Laboratory, Ottawa, Canada.

1A-03 Halide-induced carbon isotopic fractionation during UV oxidation of dissolved organic carbon in saline solutions
Brett Walker et al.
University of California, Irvine, Irvine, CA, United States.

1A-04 Establishing water samples protocols at LAC-UFF, Brazil
Daniela Bragança et al.
Laboratório de Radiocarbono, Instituto de Física, Universidade Federal Fluminense, Niterói, Rio de Janeiro, Brazil.

1A-05 Comparison of techniques and reproducibility on Canada Basin DIC ^{14}C Sea water stored at NOSAMS for 26 Years
Alan Gagnon et al.
NOSAMS-WHOI, Woods Hole, MA, United States.

1A-06 Suitable procedure in preparing water samples for radiocarbon inter-comparison
Hiroshi Takahashi et al.
Geological Survey of Japan, AIST, Tsukuba, Ibaraki, Japan.

1A-07 Testing methodologies for Radiocarbon AMS dating of soil samples from Brazil at LAC-UFF
Renata Jou et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

1A-08 Comparison of soil preparation methods for radiocarbon AMS dating
Renata Jou et al.
Laboratório de Radiocarbono, Instituto de Física, Universidade Federal Fluminense. , Rio de Janeiro, Brazil.

1A-09 Novel method of extraction for atmospheric $^{14}CO_2$ samples for determination of CO_2 emissions from fossil fuel
Katherine Pugsley et al.
University of Bristol, Bristol, United Kingdom.

1A-10 Advances in the radiocarbon analysis of carbon dioxide at the NERC Radiocarbon Facility (East Kilbride) using molecular sieve traps
Mark Garnett et al.
NERC Radiocarbon Facility (East Kilbride), Glasgow, United Kingdom.

1A-11 Reproducibility of CO_2 absorption method for measurement of radiocarbon using a Parr bomb and LSC
Irina Vagner et al.
National R&D Institute for Cryogenics and Isotopic Technologies – ICSI, Rm. Valcea, Romania.

1A-12 Radiocarbon analysis of methane at the NERC Radiocarbon Facility (East Kilbride)
Mark Garnett et al.
NERC Radiocarbon Facility (East Kilbride), Glasgow, United Kingdom.

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1B-01 Evaluation of AMS radiocarbon dating of bones using blank and known-age samples at HEKAL
István Major et al.
ICER, MTA ATOMKI, Debrecen, Hungary.

1B-02 Nitrogen content variation in archaeological bone and its implications for radiocarbon dating
Eileen Jacob et al.
University of Oxford, Oxford, United Kingdom.

1B-03 Radiocarbon dating of carbonate hydroxyapatite in bones burned at low temperatures
Masayo Minami et al.
Institute for Space-Earth Environmental Research, Nagoya University, Nagoya, Japan.

1B-04 A pre-screening protocol for radiocarbon dating of ancient bone collagen using FTIR
Yuichi Naito et al.
Nagoya University Museum, Nagoya University, Nagoya, Japan.

1B-05 Size matters: new frontiers in dating archaeological bone
Helen Fewlass et al.
Max Planck Institute for Evolutionary Anthropology , Leipzig, Germany.

1B-06 Radiocarbon dating cremated bone and comparing pretreatment methods
Helene Agerskov Rose et al.
Centre for Baltic and Scandinavian Archaeology, Schleswig, Germany.

1B-07 Radiocarbon dating of Chinese lacquer: a preliminary study
Mathieu Boudin et al.
Royal Institute of Cultural Heritage, Belgium.

1B-08 What is hidden under the glitter of museum exhibits? Characterization and treatment of unique contaminants
Eugenia Mintz et al.
The Dangoor Research Accelerator Mass Spectrometry Laboratory, the Scientific Archaeology Unit, Weizmann Institute of Science, Rehovot, Israel.

1B-09 Interpreting ^{14}C measurements on 4th century AD iron artefacts from Nydam, Denmark
Matthias Huels et al.
Leibniz-Laboratory for Radiometric Dating and Isotope Research, Kiel University, Kiel, Germany.

1B-10 Cooking with contaminants: things to consider when dating ceramics
Madison H Llewellin et al.
Arctic Centre, University of Groningen , Groningen, Netherlands.

1B-11 Effect of recrystallization of mortars—can sequence dissolution of suspension provide accurate ^{14}C ages?
Danuta Michalska & Irka Hajdas
Institute of Geology, Adam Mickiewicz University, Poznań Poland.

1B-12 Mortar Dating: A Comparison of Approaches and the use of Characterization Methods, FTIR and TGMS, in Sample Selection and Confidence Estimation
Gerard T. Barrett & Paula J. Reimer
14Chrono, School of Natural and Built Environment, Queen's University Belfast, United Kingdom.

1-B-13 Mortar Radiocarbon Dating: advancing in the methods of preparation and characterization of materials
Paola Ricci et al.
Dep. Environmental Science & technologies Univ. Campania, Caserta, Italy.

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2A-01 Status of graphitization line in Dendrochronological laboratory at AGH-UST Krakow
Andrzej Rakowski et al.
SUT, Gliwice, Poland.

2A-02 Testing the application of the sealed tube zinc method of graphitization to sample sizes down to ~100 µgC in the NERC Radiocarbon Facility, East Kilbride
Luz Maria Cisneros-Dozal et al.
NERC Radiocarbon Facility, East Kilbride, East Kilbride, United Kingdom.

2A-03 Single Step Production of Graphite from Organic Samples
Kathryn Elder et al.
NOSAMS Facility, Woods Hole, Massachusetts, United States.

2A-04 Comparison of hydrogen and zinc graphitization methods used in sample preparation for accelerator mass spectrometry
Ivan Kontuľ et al.
Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava, Slovakia.

2A-05 Coral ^{14}C measurements using the automated graphitization equipment AGE3 to estimate marine reservoir correction in the Ogasawara Islands, western subtropical Pacific
Yoko Saito-Kokubu et al.
Japan Atomic Energy Agency, Toki, Gifu, Japan.

2A-06 Experiences in the use of AGE 3 for graphite preparation at the Radiocarbon Dating Laboratory (IGAN), Russia
Elya Zazovskaya et al.
Institute of Geography RAS, Moscow, Russian Federation.

2A-07 Using the Ionplus-Carbonate Handling System (CHS) as a gas handling system with an integrated flame-sealed glass ampule cracker.
Dipayan Paul et al.
Center for Isotope Research (CIO), University of Groningen, Netherlands.

2A-08 A wood charcoal mass loss study: How much survives chemistry
R. A. Varney et al.
PaleoResearch Institute, Golden, Colorado, United States.

2A-09 A fully automated ABA preparation system for radiocarbon samples
Mikkel F. Schou et al.
AARAMS, Aarhus AMS Centre, Department of Physics and Astronomy, Aarhus University, Aarhus, Denmark.

2A-10 Progress on ^{14}C AMS sample preparation laboratory at CIAE
Yijun Pang et al.
China Institute of Atomic Energy, Beijing, China.

2A-11 Towards the limits: analysis of microscale radiocarbon samples using EA-AMS
Caroline Welte et al.
Laboratory of Ion Beam Physics, ETH Zurich, Zurich, Switzerland.

Poster Row 2B

2B-01 Characterisation of bulk sediment using Ramped Pyrolysis and thermogravimetric analysis
Evelyn Keaveney et al.
Queen's Univeristy Belfast, Belfast, Antrim, United Kingdom.

2B-02 Using Py-GC×GC/MS as a new tool to assess the purity of ancient collagen prior to ^{14}C dating
Sophie Cersoy et al.
Centre de Recherche sur la Conservation (CRC, USR 3224), Sorbonne Universités, Muséum national d'Histoire naturelle, Ministère de la Culture et de la Communication, CNRS, Paris, France.

2B-03 Influence of different acid treatments on the radiocarbon content spectrum of sedimentary organic matter determined by Ramped PyrOx / Accelerator Mass Spectrometry
Rui Bao et al.
Harvard University, Cambridge, Massachusetts, United States.

2B-04 Stepped-combustion ^{14}C dating in loess-paleosol sediments
Peng Cheng & Yizhi Zhu
The State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences (IEECAS), Xian, China.

2B-05 Determination of ^{14}C concentration in diferent foraminifera species and size limitation tests at LAC-UFF
Buna Netto et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

2B-06 Carbonate samples combustion by elemental analyser for radiocarbon dating
Serena Barone et al.
INFN Sezione di Firenze, Italy.

2B-07 Radiocarbon background measurements on marine shells
Steven Moreton et al.
NERC Radiocarbon Facility, East Kilbride, United Kingdom.

2B-08 Separation of the aragonite fraction of Vermetid shells prior to radiocarbon dating
Vinicius Moreira et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

2B-09 A promised method of diatom frustule separation from sediments for radiocarbon dating
Masako Yamane et al.
Institute for Space-Earth Environmental Research, Nagoya University, Nagoya, Japan.

2B-11 ^{14}C bomb peak analysis of African elephant tusks and its relation to CITES
Eva Maria Wild et al.
University of Vienna, Faculty of Physics, Isotope Research and Nuclear Physics, Vienna Environmental Research Accelerator (VERA), Vienna, Austria.

2B-12 Radiocarbon dating of ivory: potentialities and limitations in forensics
Gianluca Quarta et al.
CEDAD (Centre for Dating and Diagnostics)-Department of Mathematics and Physics "Ennio de Giorgi"-University of Salento, Lecce, Italy.

2B-13 Reconstructing the F^{14}C bomb peak using known age whisky to assist in the identification of fraudulent products
Elaine Dunbar et al.
SUERC, Glasgow, United Kingdom.

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3A-01 Constraining the evolution of the fossil component of the global methane budget since the pre-industrial using ^{14}C measurements in firn air and ice cores
Benjamin Hmiel et al.
Department of Earth and Environmental Sciences, University of Rochester, Rochester, NY, USA.

3A-02 Using atmospheric ^{14}CO to constrain OH variability: first results from a new approach and potential for future measurements
Vasilii Petrenko et al.
University of Rochester, Rochester, NY, United States.

3A-03 ^{14}CO in Antarctic Glacial Ice as a tracer of atmospheric OH abundance from 1880 AD to present
Peter Neff et al.
University of Rochester, Rochester, New York, United States.

3A-04 Old carbon reservoirs were not significant in the deglacial methane budget
Michael Dyonisius et al.
University of Rochester, Rochester, NY, United States.

3A-05 Radiocarbon and stable carbon isotope systematics in a high alpine cave system
Caroline Welte et al.
Laboratory of Ion Beam Physics, ETH Zurich, Zurich, Switzerland.

3A-06 Indian Ocean late Holocene oceanography reconstructed from fossil corals from Malé Island, Maldives
Yusuke Yokoyama et al.
Atmosphere and Ocean Research Institute, The University of Tokyo, Kashiwa, Chiba, Japan.

3A-07 Millennial scale variability in the East Asian monsoon: a common signal amongst lakes Suigetsu, Nojiri and Biwa, Japan
Fujio Kumon et al.
Center for Advanced Marine Core Research, Kochi University, Japan.

3A-08 Reconstructing past fog events in the hyper arid Atacama Desert: Evidence from radiocarbon and stable nitrogen and hydrogen isotopes
Andrea Jaeschke et al.
University of Cologne, Germany.

3A-10 Turnover of the petrous part of the temporal (the inner ear) bone in humans
Rachel Wood et al.
Australian National University, Canberra, Australia.

3A-11 Radiocarbon-AMS analysis in tooth for age estimation as part of forensic science task in Mexico
Corina Solís et al.
Physics Institute in the National Autonomous University of Mexico (UNAM), CDMX, Mexico.

3A-12 Investigating potential dietary effects on the radiocarbon dating of modern human hair
Ricardo Fernandes et al.
Department of Archaeology, Max Planck Institute for the Science of Human History, Jena, Germany.

3A-13 Radiocarbon dating application to modern musical instruments: an interdisciplinary study
Marie-Gabrielle Durier et al.
Laboratoire de Recherche et de Restauration, Musée de la Musique, CNRS USR 3324, Paris, France.

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3B-02 The stabilization of organic matter in soils within oases of East Antarctica based on radiocarbon dating research
Elya Zazovskaya et al.
Institute of Geography, Russian Academy of Sciences., Moscow, Russian Federation.

3B-03 Tracing the degradation of ancient organic carbon in permafrost-affected soils via ^{14}C analysis of microbial, in-situ respired CO_2
Philipp Wischhöfer et al.
Institute of Geology and Mineralogy, University of Cologne, Cologne, Germany.

3B-04 Sequential radiocarbon measurement on peaty sediments to reconstruct high precision age model of marsh deposits
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Atmosphere and Ocean Research Institute, The University of Tokyo, Japan.

3B-05 Chronology of sediments and soils of the Old Ladoga: from Neolithic to early Middle Ages
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Institute of Geography RAS, Moscow, Russian Federation.

3B-06 A very well-behaviored *Cedrela fissilis* from central Brazil
Izabela Hammerschlag et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, RJ, Brazil.

3B-07 AMS radiocarbon dates and tephra layers of cored sediments from peat land along Iliuliuk River, southeast of Dutch Harbor, Unalaska Island, Alaska
Mitsuru Okuno et al.
Fukuoka University, Fukuoka, Japan.

3B-08 Reliability of pollen concentrates for radiocarbon measurement to build chronologies in anthropologically impacted closed lake systems
Jenny Dahl et al.
GNS Science, Wellington, New Zealand.

3B-09 Quaternary soil development and sand movement periods on the Nyírség alluvial fan, Hungary
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Isotope Climatology and Environmental Research Centre, Institute for Nuclear Research, Hungarian Academy of Sciences, Debrecen, HAJDU-BIHAR, Hungary.

3B-10 Concentrations and ^{14}C content of total and dissolved organic carbon under contrasting land uses in northern NSW, Australia
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University of New England, Armidale, NSW, Australia.

3B-11 ^{14}C distribution in soils with different history of land use, Calhoun CZO, USA
Alexander Cherkinsky et al.
University of Georgia, Athens, Georgia, United States.

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4A-01 Are root zones hot spots of organic carbon in subsoils?
Janet Rethemeyer et al.
University of Cologne, Germany.

4A-02 Soil organic matter C-14 dating – comparison of charred and non-charred carbon fractions of paleosoils under kurgans from the Hungarian Great Plain
Mihaly Molnar et al.
Laboratory of Climatology and Environmental Physics, Institute for Nuclear Research, Hungarian Academy of Sciences, Debrecen, Hungary.

4A-03 Biodspheroid C-14 dating– tests on recent top soils
Titanilla Gréta Kertész et al.
Laboratory of Climatology and Environmental Physics, Institute for Nuclear Research, Hungarian Academy of Sciences, Debrecen, Hungary.

4A-04 Estimating ages and transit times of carbon in tropical forests using radiocarbon
Ingrid Chanca et al.
Max-Planck-Institut für Biogeochemie, Jena, Thüringen, Germany.

4A-05 Impact of land use change on soil carbon and radiocarbon profiles in tropical forests
Kari Finstad et al.
Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, CA, United States.

4A-06 Field variability controls soil depth-distribution of radiocarbon in a tropical environment
Erwin. Prastowo et al.
Institute for Ecosystem Research, CAU, Kiel, Germany.

4A-08 Large dead carbon fraction detected from stalagmites obtained from the Kyusendo cave in Japan
Narumi Ishizawa et al.
Atmosphere and Ocean Research Institute, The University of Tokyo, Japan.

4A-09 Assessing the dead carbon proportion and bomb carbon contribution for the isotopic composition of a speleothem from central Brazil
Kita Macario et al.
Laboratorio de Radiocarbono da Universidade Federal Fluminense (LAC-UFF), Niteroi, Rio de Janeiro, Brazil.

4A-10 Problems of developing the Pleistocene radiocarbon chronology within high mountainous terranes, case study from intermountain depressions of Russian Altai
Anna Agatova et al.
Institute of geology and mineralogy SB RAS, Novosibirsk, Russia.

4A-11 Radiocarbon profile in soil: its implication for carbon dynamics, land use history, and relation with other anthropogenic radionuclides deposition
Hiroyuki Matsuzaki et al.
MALT, The University of Tokyo, Tokyo, Japan.

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Ivan Kontuľ et al.
Comenius University, Centre for Nuclear and Accelerator Technologies (CENTA), Bratislava, Slovakia.

4B-02 Assessment of anthropogenic contamination by ^{14}C in the vicinity of Ignalina nuclear power plant
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State research institute Center for Physical Sciences and Technology, Vilnius, Lithuania.

4B-03 Pre- and post-accident C-14 levels in tree rings within 25 km of the Fukushima Dai-ichi Nuclear Nuclear Power Plant
Tetsuya Matsunaka et al.
Kanazawa University, Japan.

4B-04 ^{14}C activity in the atmosphere and biosphere around Nuclear Power Plants in the Central Europe
Ivo Svetlik et al.
CRL DRD Nuclear Physics Institute CAS, Prague, Czech Republic.

4B-05 Characterization of PM2.5 in Beijing, China: A case study during the APEC period, 2014
Yljun Pang et al.
China Institute of Atomic Energy, Beijing, China.

4B-06 Atmospheric fossil fuel CO_2 traced by $\Delta^{14}CO_2$ and air quality index pollutant in Beijing and Xiamen
Zhenchuan Niu & Weijian Zhou
State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China.

4B-07 Fossil carbon load in urban vegetation at Debrecen city, Hungary
Tamás Varga et al.
ICER Centre, INR HAS, Debrecen, Hungary.

4B-08 Radiocarbon level in the atmosphere of Ramnicu Valcea, Romania
Ionut Faurescu et al.
National Institute for Cryogenics and Isotopic Technologies - ICSI Rm. Valcea, Ramnicu Valcea, Valcea, Romania.

4B-09 Atmospheric $^{14}CO_2$ data sets from Dutch monitoring stations Smilde (1995 – 2003) and Lutjewad (2002 – present)
Sanne W.L. Palstra & Harro A.J. Meijer
RUG/Centre for Isotope Research, Groningen, Netherlands.

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5A-01 Annual ^{14}C dating of floating dendrochronological sequences. Implication for the interhemispheric offset during the Younger Dryas event
Manuela Capano et al.
CEREGE, Aix-Marseille University, CNRS, IRD, INRA, Collège de France, Aix-en-Provence, France.

5A-02 Abrupt increase of radiocarbon concentration around 660 BC in tree rings from Grabie near Cracow (SE Poland)
Andrzej Rakowski et al.
SUT, Gliwice, Poland.

5A-03 Early wood and latewood $\Delta^{14}C$ and $\delta^{13}C$ measurements of the AD 774/775 event
Joonas Uusitalo et al.
Finnish Museum of Natural History, University of Helsinki, Helsinki, Finland.

5A-04 $\Delta^{14}C$ peak in early and late tree-wood of AD 775 from Zelkova in Korea
Junghun Park et al.
KIGAM, 124 Gwahang-no, Yuseong-gu, Daejeon 34132, South Korea.

5A-05 ^{14}C in high-latitude tree rings around 1054 AD
Filippo Terrasi et al.
CIRCE - Campania University "L.Vanvitelli" and INNOVA, Caserta, Italy.

5A-06 The 1859 Carrington Event: is there a radiocarbon signature in South American trees?
John Southon et al.
Earth System Science Dept, University of California, Irvine, United States.

5A-07 Radiocarbon calibration around 1900 AD and a Scots pine tree (*Pinus Sylvestris L.*) from Northern Norway
Helene. Svarva et al.
National Laboratory for Age Determination, NTNU, Trondheim, Norway.

5A-08 AMS radiocarbon dating of very large African baobab trees from Savé Valley, Zimbabwe
Adrian Patrut et al.
Babeș-Bolyai University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania.

5A-09 Absolute dendrochronological scale for pine tree from Ujście (north-west Poland) based on radiocarbon dating to a single year using rapid atmospheric ^{14}C changes
Andrzej Rakowski et al.
SUT, Gliwice, Poland.

5A-10 Radiocarbon dating of single year tree-rings dendro-chronologically ordered within an 800 years sequence
Tiberiu Bogdan Sava et al.
Horia Hulubei - National Institute for Physics and Nuclear Engineering, Bucharest, Romania.

5A-11 First Radiocarbon Inter-comparison on Annual Tree-ring samples
Lukas Wacker et al.
Laboratory of Ion Beam Physics, ETH-Zürich, Zurich, Switzerland.

5A-12 Search for the potential ^{14}C excursions in the available radiocarbon calibration curve data
Jacek Pawlyta & Andrzej Rakowski
SUT, Gliwice, Poland.

5A-13 Comparison of maple leaf and tree ring radiocarbon signatures near Ottawa, Canada
Carley Crann et al.
A.E. Lalonde AMS Laboratory, University of Ottawa, Ottawa, Ontario, Canada.

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5B-01 Variation of the 11-year solar cycle before the onset of the Spoerer minimum
Toru Moriya et al.
Center for Accelerator Mass Spectrometry, Yamagata University, japan.

5B-02 Radiocarbon signal from past radiation events with respect to the Schwabe Cycle
Andrea Scifo et al.
University of Groningen, Centre for Isotope Research (CIO), Netherlands.

5B-03 A better understanding of solar magnetic activity through annual radiocarbon measurements in tree rings
Alexandra Fogtmann-Schulz et al.
Department of Geoscience, Aarhus University, Aarhus, Denmark.

5B-04 Identification of possible Miyake Events using COSFIRE filters
Andreas Neocleous et al.
Center of Isotope Research, University of Groningen, Groningen, The Netherlands.

5B-05 Cumulative probability distributions – what can they tell us?
Jesper Olsen
Aarhus University, Denmark.

5B-06 Comparing records to understand past rapid climate change: An intimate database update and its application to the pre-boreal oscillation(s)
Rebecca Kearney et al.
School of Archaeology, University of Oxford, United Kingdom.

5B-07 Atmospheric radiocarbon reconstruction on speleothems from Northern Turkey and Puerto Rico
Steffen Therre et al.
Institute of Environmental Physics, Heidelberg University, Heidelberg, Germany.

5B-08 Late Glacial atmospheric radiocarbon variations recorded in scots pine (*Pinus Sylvestris L.*) wood from Kwiatków, Central Poland
Marek Krąpiec et al.
AGH -University of Science and Technology, Faculty of Geology, Geophysics and Environmental Protection, Kraków, Poland.

5B-09 Radiocarbon measurement of remained wood members of Byodo-in Temple: from 10c to 12c CE.
Minoru Sakamoto et al.
National Museum of Japanese History, Sakura-shi, Chiba, Japan.

5B-10 Learning from the dendro-dated wood samples in TIRI, FIRI, VIRI and SIRI
Marian Scott et al.
University of Glasgow, Glasgow, United Kingdom.

5B-11 The best available time resolution of the radiocarbon dating method: verification of the steep parts of a calibration curve
Ivo Svetlik et al.
CRL DRD Nuclear Physics Institute CAS, Na Truhlarce 39/64, CZ-180 86 Prague, Czech Republic.

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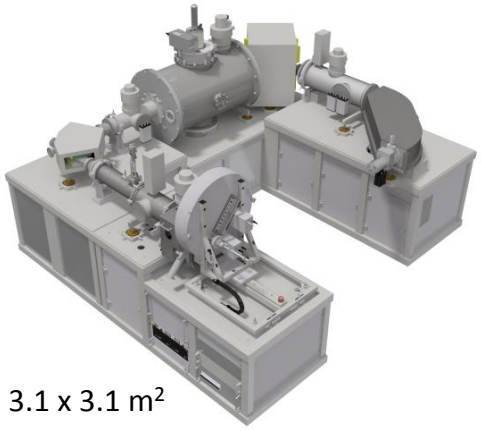
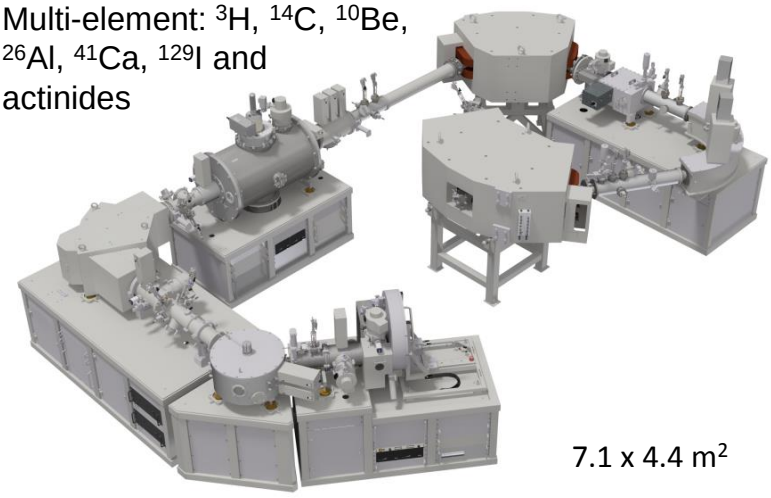


3.1 x 3.1 m^2

4103Bo-AMS

Multi-element: ^{3}H, ^{14}C, ^{10}Be, ^{26}Al, ^{41}Ca, ^{129}I and actinides



7.1 x 4.4 m^2

System features

- Element capability: ^{3}H, ^{10}Be, ^{14}C, ^{26}Al, ^{41}Ca, ^{129}I and actinides (4103Bo-AMS) and ^{14}C (4102Bo-AMS).
- Source embodiment at ground potential avoids necessity of a large high-voltage insulating cage and ensures safe and easy operation.
- One source for both solid and CO_2 gas samples admitted from ground potential.
- Interface for CO_2 samples and graphitization system.
- Vacuum pump directly on source body in close vicinity to the ionizer ensures optimal pumping speed and low memory effect in the case of CO_2 samples.
- Targets stored in a carousel and transported to the source interior upon use to avoid sample cross-contamination.
- Interchangeable with 50 or 200 sample carousel.
- Permanent magnets for reduced power consumption on 4102Bo-AMS.
- Vacuum insulated accelerator: no use of SF6.
- Accelerator with internal power supply avoids vulnerable HV cable interfacing.
- Maximal terminal voltage: 4102Bo-AMS 230 kV, 4103Bo-AMS 330 kV.
- X-ray suppression system for 4103Bo-AMS.
- Fast high voltage bouncer power supply for a cycling frequency as high as 100 Hz.
- Automatic start-up & shut-down and automated tuning, system control & monitoring as well as on-line data analysis.
- Unattended measurements of all loaded samples. Easy operation.
- Fits in a standard laboratory room.

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