12th International Conference of Archaeological Prospection

12th - 16th Septemeber 2017

University of Bradford

Conference Programme and Orientation Guide

UNIVERSITY of BRADFORD

Celebrating 50 years

City Campus map

MAP KEYS

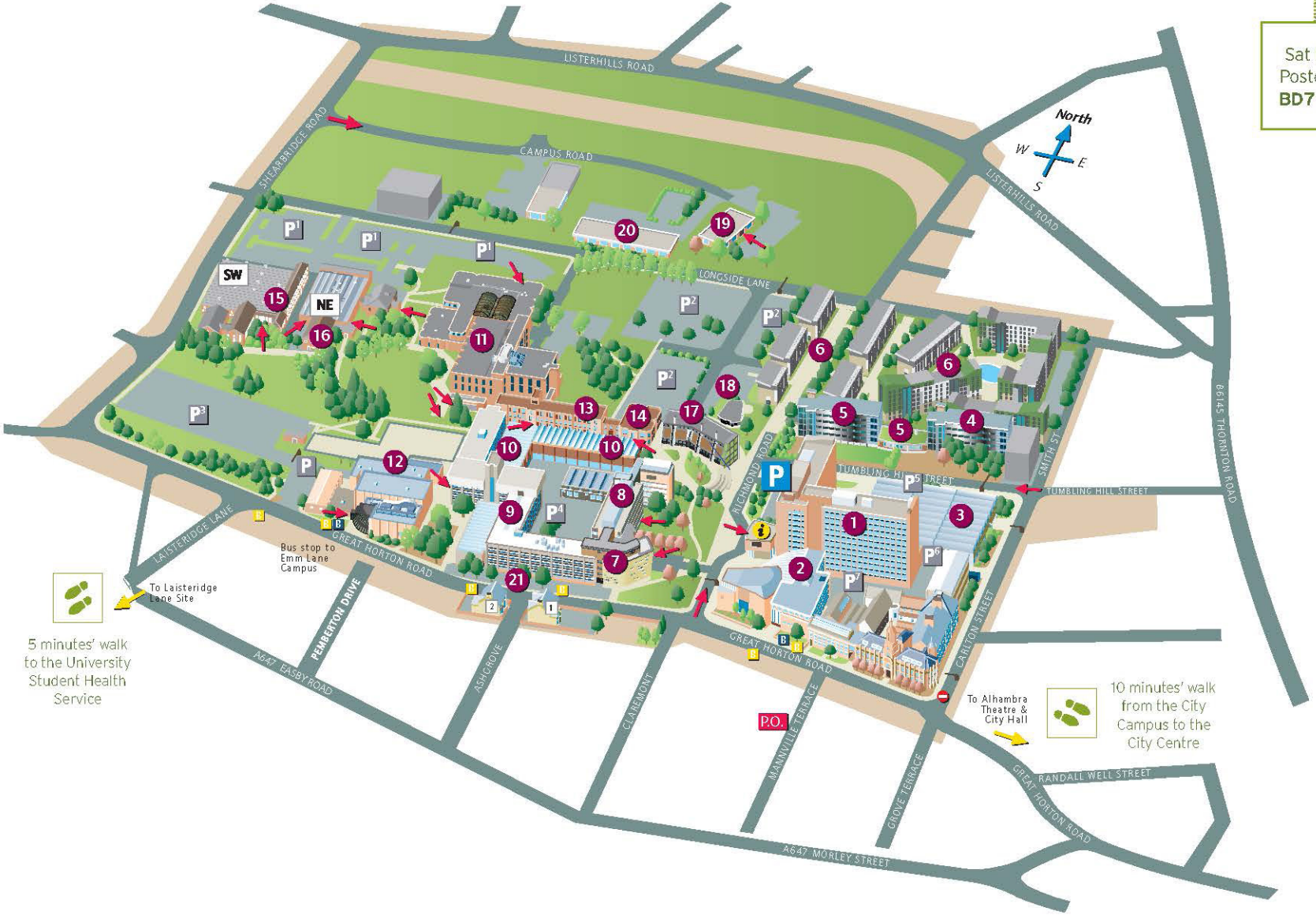
CITY CAMPUS

1. Richmond Building
2. Atrium, Richmond Building
3. Richmond Building Workshop Block
4. ICT Building (Institute of Cancer Therapeutics)
5. Norcroft Building and Norcroft Centre
6. The Green (student accommodation)
7. Horton A Building
8. Horton D Building
9. Chesham B Building
10. Chesham C Building
11. Student Central and J B Priestley Building
12. Sports and Amenities and Carlton Building
13. Pemberton Building
14. Ashfield Building
15. Phoenix Building South West
16. Phoenix Building North East
17. Bright Building (re:centre - Education and Sustainable Development Centre)
18. Cavendish Building (STEM Centre)
19. Forster Building (Eye Clinic)
20. Cobden Building
21. Peace Garden

SYMBOLS KEY

- Main entrances
- Bus stops
- Bus stops for the number 99 bus to the Emm Lane Campus
- Information
- Controlled parking areas (permit holders only)
- Visitor car parking only. Visitors must display a visitor parking permit in their car, which they can obtain from Richmond Building reception.

Main roads only shown
Map not to scale



Sat Nav Postcode **BD7 1AZ**

Welcome

The organising committee of the 12th International Conference of Archaeological Prospection welcome you to Bradford. We hope that you have an enjoyable time at the conference.

Within this booklet you will find information regarding the conference schedule, location, the University of Bradford campus, and amenities within Bradford and the surrounding area.

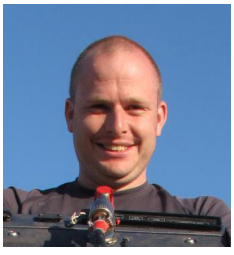
For the full abstracts from the conference, please see the Abstract Book.

If you encounter any issues or problems during the conference, please contact any member of the organising committee.

Yours sincerely,

The ICAP 2017 Organising Committee

Organising Committee

Kayt Armstrong *Durham University*		**Cathy Batt** *University of Bradford*	
Hannah Brown *Magnitude Surveys*		**Adrian Evans** *University of Bradford*	
Chris Gaffney *University of Bradford*		**John Gater** *Sumo*	
Chrys Harris *Magnitude Surveys*		**Ben Jennings** *University of Bradford*	
Mike Langton *MALA GeoScience*		**Phil Murgatroyd** *University of Bradford*	
Mark Newman *National Trust*		**Armin Schmidt** *University of Bradford*	
Tom Sparrow *University of Bradford*		**Roger Walker** *Geoscan Research*	

The University of Bradford

All of the ICAP 2017 scientific programme will be held in the Norcroft Centre, University of Bradford city campus. The Norcroft Centre is labelled “5” on the map on the inside cover of this programme. Signs will direct you to the Norcroft building from the main University entrance on Richmond Road.

If you have pre-registered for ICAP 2017, conference pack collection will be available in the Norcroft Centre from 17:00 until 18:30 on Monday 11th September, and throughout the conference days from 08:15 on Tuesday 12th September.

If you need to register for ICAP 2017, this can be done at the Payzone counter in the Richmond Building (labelled “1”). The Payzone desk is open from 10:00 until 16:00 for payment of registration fees in person, or electronic payment can be made through the conference website.

ICAP includes coffee & tea break and lunch provision, but there are further options for refreshment available in the Richmond building and Student Central.

The University of Bradford has a low cost nursery available to provide childcare for children from 12 weeks to 5 years of age. The nursery is just 5 minutes from the main campus, and opens from 7:45 to 18:00. If you would like to use this feature, further details are available at www.bradford.ac.uk/nursery or via email to s.smith7@braford.ac.uk.

Conference Schedule

Monday 11th	17:00 - 18:30	Conference pack collection	Norcroft Centre
		Registration	Norcroft Centre
Tuesday 12th	08:15 - 12:30	Registration, Welcome & Keynote presentations	Norcroft Centre
	13:30 - 17:30	Scientific Programme	Norcroft Centre
	18:00 - 20:30	Welcome Reception	Cartwright Hall, Bradford. A coach will depart from Richmond Building at 18:15 to travel to Cartwright Hall. The coach will return to Richmond Building at 20:30
Wednesday 13th	08:15 - 17:45	Registration & Scientific Programme	Norcroft Centre
	18:30	Social Programme	Kala Sangam, Forster Square, Bradford, BD1 4TY.
Thursday 14th	08:15 - 18:00	Registration & Scientific Programme	Norcroft Centre
	18:30	Conference Meal	The Midland Hotel, Forster Square, Bradford, BD1 4HU.
Friday 15th	08:15 - 17:30	Registration & Scientific Programme	Norcroft Centre
	18:00 - 20:00	ISAP AGM	Norcroft Centre
Saturday 16th	09:15 - 17:30	Excursion to Fountains Abbey	Richmond Building. Please ensure to be at the Richmond Building by 09:15 for a prompt coach departure at 09:30. One coach will return via Leeds-Bradford Airport. We will be back to the University of Bradford campus for c. 17:00-17:30.

Tuesday 12th September

08:15	Registration	
09:30	Welcome to the University of Bradford	*Professor Alastair Goldman, Dean of Faculty of Life Sciences*
09:45	Welcome to ICAP 12	*Chris Gaffney, Head of School of Archaeological and Forensic Sciences*
10:00	Archaeological Prospection: from Niche to Mainstream?	*Armin Schmidt*
10:30	The Appliance of Science: Remote Sensing, Geophysics and the Advancement of Archaeology	*Vince Gaffney*
11:00	*Coffee*	
11:30	The Impact of the National Park Service Workshop on Archaeological	*Rinita Dalan*
12:00	45 Years of Commercial Archaeological Geophysics in the UK: Have we Progressed?	*John Gater*
12:30	*Lunch & Poster Session 1*	
Session: Techniques and Technological Developments		
13:30	Not-so good vibrations: removing measurement induced noise from motorized multi-sensor magnetometry data	*Alois Hinterleitner, Immo Trinks, Klaus Löcker, Jakob Kainz, Ralf Totschnig, Matthias Kucera and Wolfgang Neubauer*
13:45	Potential of multi-frequency electromagnetic induction in volcanic soils for archaeological prospection	*François-Xavier Simon, Alain Tabbagh, Bertrand Douystessier, Mathias Pareil-Peyrou, Alfredo Mayoral and Philippe Labazuy*
14:00	Electrostatic and GPR survey: case study of the Neuville-aux-Bois church (Loiret, France)	*Guillaume Hulin, François Capron, Sébastien Flageul, François-Xavier Simon and Alain Tabbagh'm*
14:15	Semi-automated object detection in GPR data using morphological filtering	*Lieven Verdonck, Alessandro Launaro, Martin Millett, Frank Vermeulen and Giovanna Bellini*
14:30	3D induced polarization and electrical resistivity tomography surveys from an archaeological site	*Meriç Aziz Berge and Mahmut Göktuğ Drahor*
14:45	The Wenner array not as black as it is painted - surveying shallow architectural remains witht the Wenner Array. A case study of surveys in Szydłów, Poland, and Tibiscum, Romania	*Michał Pisz and Tomasz Olszacki*
15:00	Discussion	
15:15	*Coffee*	
15:45	When the time is right: the impact of weather variations on the contrast in earth resistance data	*Armin Schmidt, Robert Fry, Andrew Parkyn, James Bonsall and Chris Gaffney*
16:00	Investigating the influence of seasonal changes on high-resolution GPR data: the Borre Monitoring Project	*Petra Schneidhofer, Christer Tonning, Vibeke Lia, Brynhildur Baldersdottir, Julie Karina Øhre Askjem and Lars Gustavsen*
16:15	Extensive high-resolution ground-penetrating radar surveys	*Immo Trinks, Alois Hinterleitner, Klaus Löcker, Mario Wallner, Roland Filzwieser, Hannes Schiel, Manuel Gabler, Erich Nau, Julia Wilding, Viktor Jansa, Petra Schneidhofer, Tanja Trausmuth and Wolfgang Neubauer*
16:30	SQUID-based magnetic geoprospection: a base technology of multimodal approaches in applied geophysics	*M. Schneider, S. Linzen, M. Schiffler, S. Dunkel, R. Stolz, and D. Baumgarten*
16:45	Designing workflows in the Paphos Agora Project: first results of an integrated methodological approach	*Martina Seifert*
17:00	A multi-methodological approach on a historic wall structure of Heptapyrgion fortress thessaloniki Greece: a case study	*Dimitrios Angelis, Panagiotis Tsourlos, Gregory Tsokas, George Vargemezis and Georgia Zacharopoulou*
17:15	Discussion	
17:30	*Close*	
18:15	*Social event at Cartwright Hall*	

Wednesday 13th September

Session: Applications and Reconstructing Landscapes & Environments		
09:00	Magnetometer prospection of Neo-Assyrian sites in the Peshdar Plain, Iraqi Kurdistan	*Jörg W. E. Fassbinder, Andrei Asăndulesei, Karen Radner, Janoscha Kreppner and Andrea Squiteri*
09:15	Geophysics in Iraqi Kurdistan: discovering the origins of urbanism	*Lionel Darras, Christophe Benech and Régis Vallet*
09:30	A king and his paradise? A major Achaemenid garden palace in the Southern Caucasus	*M. Scheiblecker, J. W. E. Fassbinder, F. Becker, A. Asăndulesei, M. Gruber and K. Kaniuth*
09:45	Geophysical surveying in Egypt and Sudan periodical report for 2015-2016	*Tomasz Herbich*
10:00	Prospection at the Medamud (Egypt) site: building archaeological meaning from the geophysical in situ measurements	*Julien Thiesson, Felix Relats Montserrat, Christelle Sanchez, Roger Guérin and Fayçal Réjiba*
10:15	Discussion	
10:30	*Coffee*	
11:00	Integrating GPR and excavation at Roman Aeclanum (Avellino, Italy)	*Guglielmo Strapazzon, Ben Russell and Girolamo F. De Simone*
11:15	The late-Roman site of Santa Margarida d'Empúries. Combining geophysical methods to characterize a settlement and its landscape	*Roger Sala, Helena Ortiz-Quintana, Ekhine Garcia-Garcia, Pere Castanyer, Marta Santos and Joaquim Tremoleda*
11:30	Urban archaeology in Affile (Rome-Italy): preliminary results of the ground penetrating radar survey	*Valeria Poscetti and Davide Morandi*
11:45	Revealing the topography of the Ancient Kition (Larnaka, Cyprus): an integrated approach	*Christophe Benech, Marine Audebert, Antoine Chevalier, Lionel Darras, Sébastien Flageul, Sabine Fourrier, Alexandre Rabot, Fayçal Réjiba, Cyril Schamper and Alain Tabbagh*
12:00	Geophysical prospection in the Natal landscape of the buddha, southern Nepal	*Duncan Hale, Robin Coningham, Kosh Prasad Acharya, Mark Manuel, Chris Davis and Patricia Voke*
12:15	The challenge of investigating the tumulus of Kastas in Amphipolis (northern Greece)	*G. N. Tsokas, P. I. Tsourlos, Jung-Ho Kim, Myeong-Zong Yi and G. Vargemezis*
12:30	Exploring the urban fabric of ancient Haliartos, Boetia (Greece) through remote sensing techniques	*Apostolos Sarris, Tuna Kalayci, Manolis Papadakis, Nikos Nikas, Matjaž Mori, Emeri Farinetti, Božidar Slapšak and John Bintliff*
12:45	Discussion	
13:00	*Lunch & Poster Session 2*	
14:00	Moving beyond an identification of 'ferrous': a re-interpretation of geophysical surveys over WW1 practice trenches on salisbury plain	*Nicholas Crabb, Paul Baggaley, Lucy Learmonth, Rok Plesničar and Tom Richardson*
14:15	Archaeological validation of geophysical data: risks of the archaeological interpretation	*Ekhine Garcia-Garcia, Antonietta Lerz, Roger Sala, Arantza Aranburu, Julian Hill and Juantxo Agirre-Mauleon*
14:30	Urban prospections in The Netherlands, successes and failures	*Joep Orbons*
14:45	The status, role and acceptance of geophysical methods in Norwegian archaeology	*Arne Anderson Stamnes*
15:00	Motorized archaeological geophysical prospection for large infrastructure projects: recent examples from Norway	*Erich Nau*
15:15	Discussion	
15:30	*Coffee*	
Session: Low Altitude Prospection Techniques and Applications		
16:00	Mediterranean sites in archaeological prospection: the case study of Osor, Croatia	*Nives Doneus, Petra Schneidhofer, Michael Doneus, Manuel Gabler, Hannes Schiel, Viktor Jansa and Matthias Kucera*
16:15	Testing boundaries: integrated prospection from site to lanscape in western Sicily	*Christopher Sevara, Michael Doneus, Erich Draganits, Rosa Cusumano Cipriano Frazzetta, Barbara Palermo, Filippo Pisciotta, Rosamaria Stallone, Ralf Totschnig, Sebastiano Tusa and Antonina Valenti*
16:30	Re-visiting Sutton Hoo: revealing new elements of the princely burial ground through ground and aerial remote sensing	*Alexander Corkum, Cathy Batt, Jamie Davis, Chris Gaffney, Mike Langton and Thomas Sparrow*
16:45	Identification of buried archaeological features through spectroscopic analysis	*Yoon Jung Choi, Johannes Lampel, David Jordan, Sabine Fiedler and Thomas Wagner*
17:00	A new semi-automated interpretation of concave and convex features in digital archaeogeophysical datasets	*R. Pašteka, S. Hronček, M. Felcan, P. Milo, D. Wilken and R. Putiška*
17:15	Transforming the search for human origins using new digital technologies, low altitude imaging, and citizen science	*Adrian Evans, Thomas Sparrow, Louise Leakey, Andrew Wilson, Randy Donahue*
17:30	Discussion	
17:45	*Close*	
18:30	*Social Event - Kala Sangam*	

Thursday 14th September

Session: Applications and Reconstructing Landscapes & Environments		
09:00	Geophysical studies in Maya sites of the Caribbean coast, Quintana Roo, Mexico	*Luis Barba, Jorge Blancas, Agustín Ortiz, Patricia Meehan, Roberto Magdaleno and Claudia Trejo*
09:15	Subsurface geophysical approaches to understanding Northern Plains earthlodges	*Rinita A. Dalan, George R. Holley, Kenneth L. Kvamme, Mark D. Mitchell and Jay Sturdevant*
09:30	The magnetic signature of Ohio earthworks	*Jarrod Burks*
09:45	'Over head and ears in shells' recent examples of geophysical survey of historic designed landscapes and gardens	*Neil Linford, Paul Linford and Andrew Payne*
10:00	Three hundred miles in the footsteps of Vespasian . . . and the Ancient Monuments Laboratory	*Paul Cheetham, Dave Stewart and Harry Manley*
10:15	When geology plays a major role in the results of archaeological prospection - case studies from Bohemia	*Roman Krivanek*
10:30	Discussion	
10:45	*Coffee*	
11:15	Settling selection patterns and settlement layout development in the Chalcolithic Cucuteni culture of north-eastern Romania. Interpretation and presentation of prospection results	*Andrei Asăndulesei, Felix-Adrian Tencariu, Mihaela Asăndulesei and Radu-Ștefan Balaur*
11:30	From magnetic SQUID prospection to excavation – investigations at Fossa Carolina, Germany	*S. Linzen, M. Schneider, S. Berg-Hobohm, L. Werther, P. Ettel, C. Zielhofer, J. Schmidt, J. W. E. Faßbinder, D. Wilken, A. Fediuk, S. Dunkel, R. Stolz, H.-G. Meyer and C. S. Sommer*
11:45	Sussing out the super-henge: a multi method survey at Durringotn Walls	*Wolfgang Neubauer, Vincent Gaffney, Klaus Löcker, Mario Wallner, Eamonn Baldwin, Henry Chapman, Tanja Trausmuth, Jakob Kainz, Petra Schneidhofer, Matthias Kucera, Georg Zotti, Lisa Aldrian and Hannes Schiel*
12:00	Augmenting the interpretative potential of landscape-scale geophysical data - a case from the Stonehenge landscape	*Philippe De Smedt, Henry Chapman and Paul Garwood*
12:15	Large-scale high-resolution magnetic prospection of the KGAs Rechnitz, Austria	*Hannes Schiel, Wolfgang Neubauer, Klaus Löcker, Ralf Totschnig, Mario Wallner, Tanja Trausmuth, Matthias Kucera, Immo Trinks, Alois Hinterleitner, Alexandra Vonkilch and Martin Fera*
12:30	Integration of ground-penetrating radar and magnetic data to better understand complex buried archaeology	*Lawrence B. Conyers*
12:45	How to make sense out of incomplete geophysical data sets - cases from archaeological sites in North-eastern Croatia	*Cornelius Meyer*
13:00	The application of semi-automated vector identification to large scale archaeological data sets considering anomaly morphology	*Neil Linford and Paul Linford*
13:15	Discussion	
13:30	*Lunch & Poster Session 3*	
Session: Integration of Techniques and Inter-disciplinary Studies		
14:30	The use of digital mobile technologies for geoarchaeological survey: the examples of the Pinilla del Valle raw materials project	*Ana Abrunhosa, João Cascalheira, Alfredo Pérez-González, Juan Luís Arsuaga and Enrique Baquedano*
14:45	Skills and orotocols for archaeological Interpretation in a multispectral geophysical survey world	*Lewis Somers*
15:00	Changing faces: archaeological interpretations and the multi-stage archaeological prospection of the Roman town of Aregenua	*Karine Jardel, Armin Schmidt, Michel Dabas and Roger Sala*
15:15	Seeing is believing? Non-destructive research of the western Lesser Poland upland, 2010-2017	*Piotr Wroniecki*
15:30	Discussion	
15:45	*Coffee*	
Session: Marine, Inter-tidal and Wetland Prospection Techniques and Applications		
16:00	Recent trends in shallow marine archaeological prospection in the eastern Mediterranean	*Nikos Papadopoulos, Kleanthis Simyrdanis and Gianluca Cantoro*
16:15	Monitoring marine construction zones through the iterative use of geophysics and diving	*P. A. Baggaley, L. H. Tizzard and S. H. L. Arnott*
16:30	A ghostly harbour? How delusive gradiometric data can be and how seismic waveform inversion might help	*Michaela Schwardt, Daniel Köhn, Tina Wunderlich, Dennis Wilken, Wolfgang Rabbel, Thomas Schmidts and Martin Seeliger*
16:45	Archaeological prospection of Medieval harbours in the North Atlantic	*Joris Coolen, Natascha Mehler, Dennis Wilken, Ronny Weßling, John Preston, Tina Wunderlich and Peter Feldens*
17:00	Ripples in the sand: locating a complete aircraft in the inter-tidal zone	*Peter Masters*
17:15	Dynamic 3D electrical resistivity tomography for shallow off-shore archaeological prospection	*Nikos Papadopoulos and Kleanthis Simyrdanis*
17:30	Out of the blue: exploring lost frontiers in Doggerland	*Simon Fitch*
17:45	Discussion	
18:00	*Close*	
18:30	*Conference Meal, The Midland Hotel*	

Friday 15th September

Session: Integration of Techniques and Inter-disciplinary Studies		
09:00	Integrated geophysical, archaeological and geological surveys for the characterization of Tusculum archaeological site (Italy)	*Salvatore Piro, Elisa Iacobelli, Enrico Papale and Valeria Beolchini*
09:15	What you see is what you get? Complimentary multi-scale prospection in an extant upland landscape, Yorkshire Dales National Parl, UK	*Mary K. Saunders*
09:30	A largescale simultaneous magnetometer and electromagnetic induction survey at Stična Hillfort, Slovenia	*Chrys Harris, Ian Armit, Finnegan Pope-Carter, Graeme Attwood, Lindsey Büster and Chris Gaffney*
09:45	Integrated geophysical prospection in a Hittite Empire city (Šapinuwa)	*Mahmut Göktuğ Drahor, Meriç Aziz Berge, Caner Öztürk, Buket Ortan, Atilla Ongar, Aygül Süel, Sedef Ayyildiz, Önder Şeref Avsever and Funda İçke*
10:00	In search of the lost city of Therouanne: a new integrated approach	*Michel Dabas, François Blary, Laurent Froideval and Richard Jonvel*
10:15	Discussion	
10:30	*Coffee*	
11:00	From integrated interpretative mapping to virtual reconstruction - a practical approach on the Roman town of Carnuntum	*Juan Torrejón Valdelomar, Mario Wallner, Klaus Löcker, Christian Gugl, Wolfgang Neubauer, Michael Klein, Nika Jancsary-Luznik, Tanja Trausmuth, Alexandra Vonkilch, Tomas Tencer, Lisa Aldrian and Michael Doneus*
11:15	Unique details on the structural elements of a Neolithic site in Velm, Lower Austria - the necessity of integrated prospection and visualization in archaeological prospection	*Mario Wallner, Juan Torrejón Valdelomar, Immo Trinks, Michael Doneus, Wolfgang Neubauer, Hannes Schiel, Tanja Trausmuth, Alexandra Vonkilch and Alois Hinterleitner*
11:30	Geophysical insights and problem solving at Chief Looking's Village, North Dakota, USA	*Kenneth L. Kvamme*
11:45	*Discussion*	
Session: Commercial Archaeological Prospection		
12:00	Introduction to Commercial session & Workshop	
12:15	The diverse role of electromagnetic induction survey in development-led alluvial (geo-)archaeology: Prehistoric and (post-)Medieval landscape archaeology at Prosperpolder Zuid (north-west Belgium)	*Jeroen Verhegge, Timothy Saey, Pieter Laloo, Machteld Bats and Philippe Crombé*
12:30	Living in a post-workhorse world: observations learnt from rapidly acquired electromagnetic induction surveys in Ireland (…when magnetometry just won't do…)	*James Bonsall*
12:45	Live-streaming for the real-time monitoring of geophysical surveys	*F. Pope-Carter, C. Harris, G. Attwood and T. Eyre*
13:00	*Lunch*	
14:00	CPD Workshop presentations	*NewGen & GeoSIG*
15:00	*Coffee*	
15:30	CPD Workshop practical trouble shooting	*Matt Guy*
17:30	*Close*	
18:00	ISAP AGM	

Keynote Presentations

Archaeological Prospection: from Niche to Mainstream?

Dr Armin Schmidt
Honorary Visiting Research Fellow, School of Archaeological and Forensic Sciences, University of Bradford

After the era of the early pioneers (see the conference 'Pioneering Archaeological Prospection' in Laa, Austria, 2011) archaeological geophysical prospection gradually advanced from its niche to a recognised discipline of archaeological investigation. To move the subject further Bradford, in the 1990s, started a three-pronged initiative: making affordable instrumentation available (mainly fluxgate magnetometers and earth resistance meters), raising public awareness (participating in the TV series 'Time Team'), and facilitating teaching and research (MSc Archaeological Prospection, journal 'Archaeological Prospection'). The latter then led to the first International Conference on Archaeological Prospection in 1995. This conference series charted the development of the subject in subsequent years. In addition to the gradual improvement of existing techniques two 'disruptive technologies' led to major new developments. The impressive results of GPR surveys in Japan and the USA demonstrated the enormous potential of this technique; and the advent of high-precision GPS positioning allowed for the fast and convenient coverage of large areas. As a result motorised GPR surveys of whole landscapes have now become feasible, as demonstrated by the work of the LBI ArchPro.

With all these advances, has archaeological prospection actually become part of mainstream archaeology? And if so, is this a good thing?

Approximately 15 years ago every new archaeological project had to have a GIS component; currently there needs to be some 3D photogrammetry. Maybe the widespread uptake of such new technology by archaeological researchers and professionals can be considered for it to have "made it" into the mainstream. Although geophysics has also become a desirable component for many archaeological projects, there remain important differences to GIS and 3D photogrammetry. The results produced with the latter by a 'skilled operator' are often close to traditional outputs (e.g. maps, excavation recordings, finds drawings) and can easily be used as input into the archaeological interpretative workflow. By contrast, the archaeological interpretation of geophysical data, even when acquired and processed to high standards by trained operators, requires considerable expertise and interaction between geophysicists and archaeologists. Therefore, if geophysics is just used as another tool (e.g. just delivering greyscale images), it can result in disappointment. It is important to include the data processing and analysis steps into the overall hermeneutic cycle of a site's interpretation. In that respect it can be argued that geophysics has not reached the archaeological mainstream yet and that an understanding of its special requirements is needed to reap its full benefits.

Armin Schmidt obtained a doctorate in physics from the University of Technology in Aachen, Germany (RWTH) in 1993. Pursuing his interest in archaeological geophysics he then took up a position at the University of Bradford, UK, where he led the archaeological prospection research group and the MSc in Archaeological Prospection for 17 years, working on projects from Ecuador to Iran, Nepal and Japan. He founded ISAP in 2003 and now works in Germany.

The appliance of science: remote sensing, geophysics and the advancement of archaeology

Professor Vince Gaffney
School of Archaeological and Forensic Sciences, University of Bradford

Over a working life remote sensing and geophysics have gradually pervaded archaeology. From a beginning, arguably at best as a tool to mine traditional sites, our surveys have become increasingly extensive and finer resolution and in doing so have not simply enhanced the utility of science to describe the past; they have provided a context for transformative interpretation. Understanding how this has happened certainly requires an appreciation of the enhanced capacity of computers to capture, store and visualise data, but there is also a requirement to understand how archaeology itself has evolved and begun to appreciate the utility of technology in its interpretation of the past. Recent developments, however, are providing novel problems for archaeology and geophysics. As our data sets become supra-national our capacity to interface with archaeology is challenged. How are we to react to a brave new world where our data and maps may be the archaeology in its entirety This paper discusses the development of landscape archaeology within this context and over a period spanning four decades.

Professor Vincent Gaffney is Anniversary Chair in Landscape Archaeology at the University of Bradford. Taking both his undergraduate and post-graduate studies at the University of Reading his primary research was centred on landscape archaeology. This included studies of villa estates on the Berkshire Downs through to the archaeology of the Central Dalmatian Islands. On completion of his doctoral studies his research was centred on the investigation of Roman urbanism but also strayed as far as the survey of Diocletian's Mausoleum in Split, the wetland landscape of the river Cetina (Croatia), fieldwork in Italy centred on the Roman town at Forum Novum, historic landscape characterisation at Fort Hood (Texas) and internet mapping of the Mundo Maya region. More recent work has included the Birmingham/LBI_ArchPro "Stonehenge Hidden Landscapes" Project and extensive survey of the submerged landscapes of the southern North Sea including his recent ERC-funded Advanced Grant project - "Lost Frontiers: exploring climate change, settlement and colonisation of the submerged landscapes of the North Sea basin using ancient DNA, seismic mapping and complex systems modelling.

Keynote presentations

45 Years of Commercial Archaeological Geophysics in the UK: Have we Progressed?

Dr John Gater MCIfA FSA
SUMO Services

Back in the mid-1970s, some of the earliest developer-led archaeological geophysics was carried out by the then Ancient Monuments Laboratory at English Heritage on the Southern Feeder gas pipeline. The results were so successful that in 1979 British Gas employed the author to set up an in-house department carrying out geophysical surveys. The remit was to investigate sites in advance of construction of a major network of pipelines bringing gas from the North Sea to regions throughout the UK. The geophysics team were an integral part of the planning and engineering discussions from the outset.

In the early 1990s geophysical surveys commenced at a number of locations along the A303 at Stonehenge. This was the start of two decades of survey work carried out at the behest of the Highways Department working with a variety of Engineering, Environmental and Heritage Consultants. Alternative routes were investigated in a piecemeal way, with seemingly little reflection on future strategies. Little or no discussion took place with the archaeological geophysicists. The end result is that in 2017 the original surveys are now being reassessed to test their integrity; the project raises many intellectual questions including whether we can rely on the data from past surveys.

In 2026, or thereabouts, people will be travelling on trains between Birmingham and London at unheard of speeds and passing over sites which had been surveyed geophysically at unheard of speeds. The surveys will have been carried out by armies of people with arrays of instruments which have collected terabytes of data per hectare (enough to warm even the hearts of ADS). The end result: - an interpretation plot on a layer in GIS. This is HS2 and we are in 2017...45 years into Commercial Archaeological Geophysics...

This paper will reflect on the above projects and passing mention will be made of Time Team which enabled archaeological geophysicists to realise they are not always infallible.

John carried out his first geophysical survey some 44 years ago and has been involved full-time in Archaeological Geophysics since graduating from Bradford University in 1979; the past 32 years have been spent in Commercial Archaeological Geophysics. He also filled 20 years of his life as a 'media star' on Channel 4's award-winning archaeological programme Time Team. His interests in archaeological geophysics are only surpassed by the lure (magnetism?) of Real Ale.

The Impact of the National Park Service Workshop on Archaeological Prospection in the U.S.

Professor Rinita Dalan
Faculty of Anthropology and Earth Science, Minnesota State University Moorhead

The National Park Service workshop "Current Archeological Prospection Advances for Non-Destructive Investigations in the 21st Century" is an annual, week-long series of lectures and field exercises providing training in the archaeological application of geophysical, aerial and other remote sensing methods. Over 27 years, its volunteer instructors have provided training to nearly 900 participants at 28 unique U.S. historic, proto-historic, and prehistoric properties. Established in 1991, it is not only the longest-standing such course, but it has trained the broadest base within the archaeological community. Standardized course evaluations indicate that the quality of instruction, interaction between instructors and participants, hands-on field exercises, and training materials have been central to the success of the course. In addition to training, the course has created a community of practitioners, providing opportunity for professional development, mentoring, and collaborative research and development efforts, and has also generated a significant amount of primary data, reports, and publications. In sum, the workshop has played a major role in the development and use of geophysical methods in archaeology in the United States.

Rinita A. Dalan is a Professor of Anthropology and Earth Science at Minnesota State University Moorhead (since 1999). Her research focuses on the integration of exploration geophysics and soil magnetism in the study of archaeological landscapes. She was first employed as an archaeologist and geophysicist at Geo-Recon International in 1979. She earned a Master's degree in Environmental Science from Southern Illinois University Edwardsville in 1989 and a Ph.D. in Ancient Studies at the University of Minnesota in 1993. Her work has been supported by grants from the National Science Foundation, the National Endowment for the Humanities, the National Center for Preservation Technology and Training and others. She was the lead author of the book Envisioning Cahokia (NIU Press 2003) and has authored and co-authored numerous articles on the development and use of new technologies in the archaeological application of magnetic susceptibility techniques and soil magnetism.

Poster Session 1: Tuesday 12th

Looking for the Ancient Nile banks and their relationship with a Neolithic site: the example of Kadruka (Sudan)
Yves Bière, Pierrick Matignon, Ludovic Bodet and Julien Thiesson

The forgotten castle of the Ciołek family in Żelechów, Mazowieckie province, Poland
Wojciech Bis, Tomasz Herbich and Robert Ryndziewicz

Non-invasive investigations at early medieval strongholds in Lubuskie province (western Poland)
Bartłomiej Gruszka and Łukasz Pospieszny

Nebelivka, Ukraine: geophysical survey of a complete Trypillia mega-site
Duncan Hale, John Chapman, Mikhail Videiko, Bisserka Gaydarska, Natalia Burdo, Richie Villis, Natalie Swann, Patricia Voke, Nathan Thomas, Andrew Blair, Ashley Bryant, Marco Nebbia, Andrew Millard and Vitalij Rud

The auxiliary castrum at Inlăceni (Énlaka), Romania: results of the geomagnetic survey 2016
Rainer Komp and Ingo Petri

Meninx – geophysical prospection of a Roman town in Jerba, Tunisia
Lena Lambers, Jörg W. E. Fassbinder, Stefan Ritter and Sami Ben Tahar

Geophysical survey at bronze age sites in southwestern slovakia: Case studies of fortified settlement in Hoste and burial ground in Majcichov
Zuzana Litviaková, Roman Pašteka, David Kušnirák, Michal Felcan and Martin Krajňák

An Achaemenid site in south-east Iran. A magnetic survey at Afraz (Bam-Baravat fault), Kerman
Kourosh Mohammadkhani and Raha Resaleh

The challenges of reconstructing the archaeological landscape around the castle in Gołuchów, Poland
Michał Pisz and Inga Głuszek

Revealing the structural details of the minoan settlement of Sissi, eastern Crete, through geophysical investigations
Apostolos Sarris, Meropi Manataki, Sylviane Déderix and Jan Driessen

The Guaquira-Tiwanaku project (Bolivia): a multidisciplinary approach of ancient societies/ environment interactions
M.-A. Vella, G. Bievre, R. Guerin, J. Thiesson and C. Camerlynck

Castra Terra Culmensis - results of non-invasive surveys of the Teutonic Order's strongholds in the Culmerland (Poland)
Marcin Wiewióra, Krzysztof Misiewicz, Wiesław Małkowski and Miron Bogacki

Poster Session 2: Wednesday 13th

Using geophysical techniques to 'dig deep' at Grave Creek mound for cultural resource management
Alexander Corkum, Cathy Batt, Jamie Davis, Chris Gaffney, and Thomas Sparrow

Marine seismics along the Kane Peninsula
Annika Fediuk, Dennis Wilken, Tina Wunderlich and Wolfgang Rabbel

Geophysical and geochemical definition of a rural medieval churchyard at Furulund, Hedmark, Norway
Lars Gustavsen, Rebecca J S Cannell, Monica Kristiansen and Erik Nau

The iron-age burial mounds of Epe-Niersen, the netherlands: results from magnetometry in the range of ±1.0 nT
Lena Lambers, Jörg W. E. Fassbinder, Karsten Lambers and Quentin Bourgeois

Multi-method prospection of an assumed early medieval harbour site and settlement in Goting, island of Föhr (Germany)
Bente Sven Majchczack, Steffen Schneider, Dennis Wilken and Tina Wunderlich

Built to last: building a magnetometer cart - advantages and disadvantages in the construction of a bespoke system
Peter Masters, Gary Cooper

Archaeological Seismic survey: A Case study from Millmount, Drogheda, Ireland
Igor Murin, Conor Brady

Ultra shallow marine geophysical prospection in the prehistoric site of Lambayanna, Greece
Nikos Papadopoulos, Julien Beck, Kleanthis Simyrdanis, Gianluca Cantoro, Nasos Argyriou, Nikos Nikas, Tuna Kalayci and Despoina Koutsoumpa

3D electrical resistivity imaging in shallow marine environment: case study at the harbor "KATO pafos", cyprus
Kleanthis Simyrdanis, Nikos Papadopoulo and Gianluca Cantoro

Results of the GPR survey of former Roman churches in Slovakia
J. Tirpak, M. Bielich, M. Martinak and Daniel Bešina

Multi-channel GPR surveys for the detection of buried Iron-Age settlement remains: a case study from Bårby ring fort, Öland, Sweden
Andreas Viberg

Imaging a medieval shipwreck with 3D marine reflection seismics
Dennis Wilken, Hannes Hollmann, Tina Wunderlich, Clemens Mohr, Detlef Schulte-Kortnack and Wolfgang Rabbel

Poster Session 3: Thursday 14th

Investigations of Esie steatite structures using geophysical, petrological and geotechnical techniques
A. M. Bello, V. Makinde, O. Mustapha and M. Gbadebo

Geological and pedological artefacts within UK magnetic gradiometer data for archaeological prospection
Edward Cox and Rebecca Davies

Investigation and virtual visualisation of a probable burial mound and latermotte-and-bailey castle from Lower Austria
Roland Filzwieser, Leopold Toriser, Juan Torrejón Valdelomar and Wolfgang Neubauer

The planning of Daskyleion (Turkey), the Achaemenid capital of the Hellespontine Phrygia: report on three survey campaigns (2014-2016)
Sébastien Gondet

Automation, automation, automation: a novel Approach to Improving the pre-excavation detection of inhumations
Ashely Green, Paul Cheetham and Timothy Darvill

Assessing the effect of modern ploughing practices on archaeological remains by combining geophysical surveys and systematic metal detecting
Lars Gustavsen, Monica Kristiansen, Erich Nau and Bernt Egil Tafjord

Medieval monks seen through a modern landscape
Freya Horsfield

From large- to medium- to small- scale geophysical prospection
Jakob Kainz

The results of magnetometer prospection as an indicator of the extent and intensity of soil erosion of archaeological sites
Roman Krivanek

The story of two ceramic vessels: geophysical prospection and excavation in the premises of Volkswagen Slovakia
Peter Milo, Tomáš Tencer and František Žák Matyasowszky

Geophysical survey for understanding Dousaku-Kofun structure
Chisako Miyamae, Yuki Itabashi and Hiroyuki Kamei

Integrated geophysical and archaeological surveys to study the archaeological site of Cerveteri (Rome, Italy)
Salvatore Piro, Enrico Papale, Daniela Zamuner and Vincenzo Bellelli

Deserted fortified Medieval villages in South Moravia
Michal Vágner, Tomáš Tencer, Petr Dresler, Michaela Prišťáková, Jakub Šimík and Jan Zeman

Looking for Something to Eat & Drink in Bradford?

Prefer something a bit milder? Then try the Brewhaus or Sir Titus Salt, both on Randall Well Street (next to the Alhambra theatre). They offer a range of good quality pub style food, and a range of cocktails and beers.

Bradford is famous for its Indian restaurants. If you would like to try a curry, or take on a Naan Challenge, then head to Omar's on Great Horton Road.

Looking for a traditional English Pub? Why not try the Fighting Cock? Located close to the University on Preston Street, they offer a range of beer and cider.

Not far from the National Science and Media Museum, the Jacobs Well offers a range of drinks and light food.

North Parade is home to a wide variety of pubs and bars, serving a wide range of beers, ales, wine, and cocktail. If you're looking for a good night in a central location, somewhere on North Parade is a great bet.

My Lahore is a family run business offering British Asian cuisine. Offering traditional cuisine with a modern twist, and classic desserts, they are a great choice. Also close to the University on Great Horton Road.

Sunbridge Wells, opened in 2016, is an underground tunnel complex adjacent to City Square, housing a number of bars and pop up shops. The tunnels are a great experience, and offer a great range of beverages.

Located near Forster Square train station, on Kirkgate, the Should of Mutton is a transformed 19th century coaching inn. Handy for the city centre, the pub offers a variety of drinks.

Bradford Brewery offers a range of beer, including their from their own micro-brewery, and serve a range of award winning pies.

Still not sure? There are a number of restaurants catering for various tastes at both City Park and The Broadway Shopping Centre - about 15 minutes walk from the University of Bradford.

Something to see in & around Bradford?

If you have some spare time and would like to explore in and around Bradford, why not head to the National Science and Media Museum? Entry is free, and the museum houses a range of exhibits covering media subjects from photography to video games.

Ilkley

Ilkley is a picturesque town in the Wharfe Valley that was originally a spa town. It is now well known for its surrounding moorland. Why not visit the Cow and Calf, a rock outcrop with graffiti from the 19th century and prehistoric rock art. For a traditional Yorkshire tea, why not visit Betty's Tea Rooms? Ilkley is about 20 minutes by train from Forster Square station.

Leeds

Just 15 minutes by train, Leeds metropolis offers the bright lights of a city, with an abundance of shops, restaurants, bars, cafés, and cultural opportunities. Leeds train station is a central hub form the UK rail network.

Slightly outside the city centre, the Industrial Museum houses machinery related to the textile industry, and others, from the 19th century.

Saltaire

Saltaire Village is near Bradford, and can be easily reached by train from Forster Square station. The village is named after Sir Titus Salt who built a textile mill, known as Salts Mill and this village on the River Aire. Designed by architects, Lockwood and Mawson, Salts Mill was opened on Sir Titus Salt's 50th birthday, 20 September 1853. In December 2001, Saltaire was designated a World Heritage Site by UNESCO.

A short trip from the city centre, Bolling Hall offers the chance to visit a Medieval Hall. The Hall was a Royalist household, and managed to survive the Civil War intact. Entry is free.

Skipton

Skipton has a broad history of development from an Anglo-Saxon settlement to the Industrial Revolution. The town is known as one of the best places in Britain to visit for its range of shops, cafés, and sites - such as Skipton Castle. It takes about 45 minutes to get to Skipton on the train from Forster Square station.

Useful Information

Taxis
Euro Taxi: +44 (0)1274 689 999
Metro: +44 (0) 1274 733 733
Leap: +44 (0) 1274 721 616
Green & White: +44 (0) 782 453

Public Transport
Northern Rail: www.northernrailway.co.uk
The Train Line: www.thetrainline.co.uk
National Rail: www.nationalrail.co.uk
First Bus: www.firstgroup.com/bradford

Bradford
University of Bradford: www.bradford.ac.uk
Tourist Information: www.visitbradford.com

Useful Information

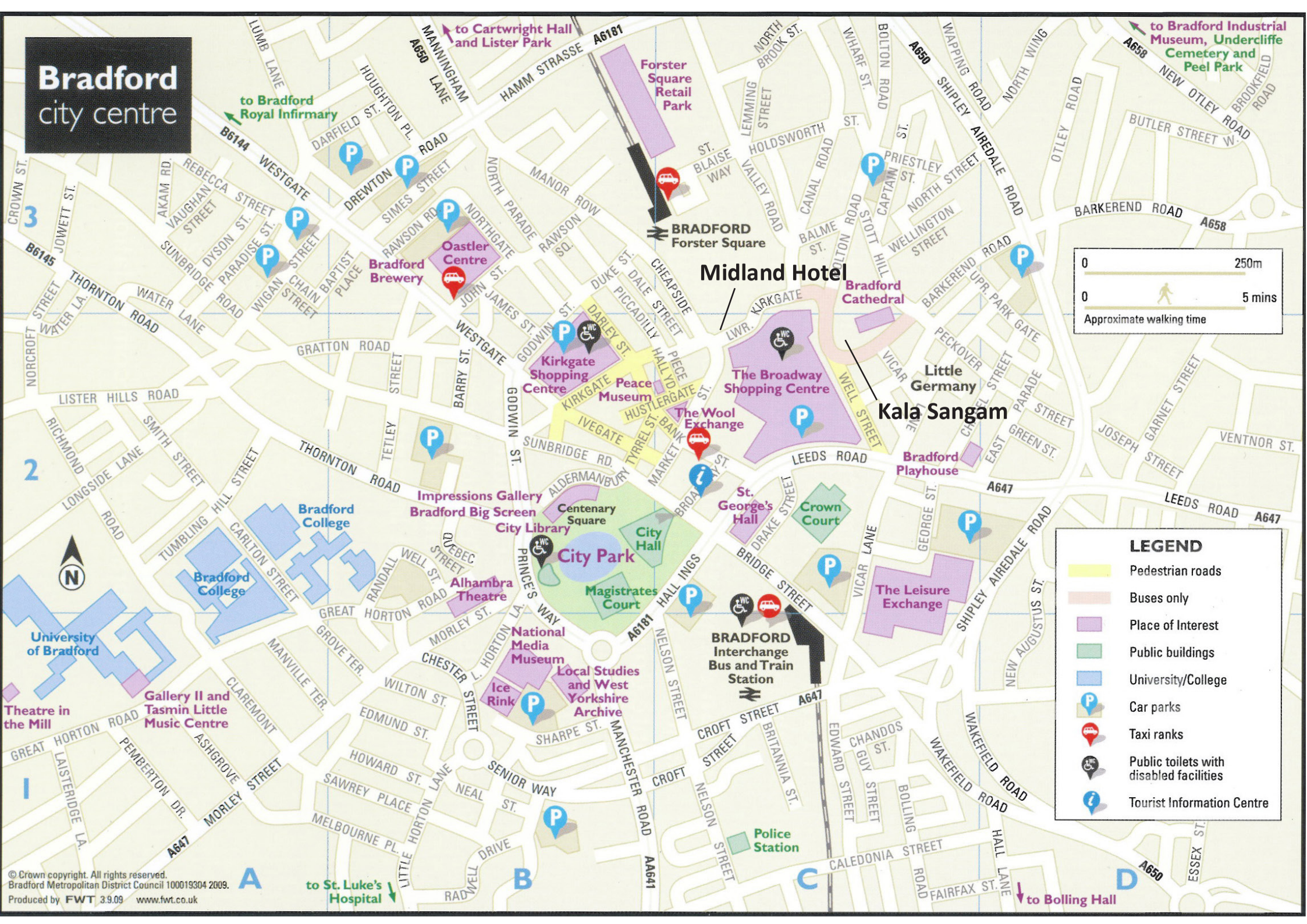
All of the ICAP 2017 scientific programme will be held in the Norcroft Centre, University of Bradford city campus.

The Norcroft Centre is equipped with a lecture hall (lower floor) and lounge area (entry floor). The scientific programme will be held in the lecture hall, accessible by stairs or lift. The poster presentations, exhibition area, tea, coffee and lunch breaks will be held in the lounge area. Rest room facilities are available in both the lounge area and adjacent to the lecture hall.

The Norcroft Centre is a non-smoking building. The nearest smoking shelter is directly opposite the entrance to the conference centre.

The lecture hall is equipped with a hearing loop device if you require this.

The Norcroft Centre has clearly signed escape and evacuation routes in the event of an emergency. The Organising Committee will be able to direct you in the event of an emergency or first aid situation.


Bradford
city centre
to Cartwright Hall and Lister Park
to Bradford Royal Infirmary
to Bradford Industrial Museum, Undercliffe Cemetery and Peel Park
Forster Square Retail Park
BRADFORD Forster Square
Midland Hotel
Bradford Cathedral
Kala Sangam
Little Germany
Oastler Centre
Bradford Brewery
Kirkgate Shopping Centre
Peace Museum
The Broadway Shopping Centre
The Wool Exchange
Bradford Playhouse
St. George's Hall
Crown Court
Impressions Gallery
Bradford Big Screen
City Library
Centenary Square
City Hall
City Park
Magistrates Court
Alhambra Theatre
Bradford College
University of Bradford
Theatre in the Mill
Gallery II and Tasmin Little Music Centre
National Media Museum
Ice Rink
Local Studies and West Yorkshire Archive
BRADFORD Interchange Bus and Train Station
The Leisure Exchange
Police Station
to St. Luke's Hospital
to Bolling Hall
0 250m
0 5 mins
Approximate walking time
LEGEND
Pedestrian roads
Buses only
Place of Interest
Public buildings
University/College
Car parks
Taxi ranks
Public toilets with disabled facilities
Tourist Information Centre
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