SOCIETE FRANCAISE
DE GENIE DES
PROCEDES

FINAL PROGRAM

International Conference

Bio & Food Electrotechnologies (BFE2009)

22-23 October 2009
Compiègne, France

The registration and the payment are available on line
http://oasys.utc.fr/bfe2009/users/

BFE2009 (International Conference on Bio &Food Electrotechnologies) will be held in Compiègne and organized by the International Society of Food Engineering, French Society "Génie de Procédés Industriels, Région Picardie, Industries and Agro-Resources" Competitiveness Cluster and University of Technology of Compiègne (UTC).

The conference will be organized on the following topics:

1. ***Fundamental Principles, Electrophysical Properties of Bio & Food Materials (including basic mechanisms and effects of electric field in biological tissues, electrophysical properties of biomaterials and modeling).***
2. ***Electric Field Treatments in Bio & Food Processing, Production of Safe and High Quality Products (pulsed electric fields, ohmic heating, moderate electric field processing, arc-discharge, electrofiltration, electro-dewatering, other electrotechnologies, and combined treatments).***
3. ***Applications of Electrotechnologies (including testing and validation, development of electric field generators and treatment chambers, pilot and industrial scale realizations).***

The official language will be English

The Conference includes:

- **Plenary conferences**
- **Oral presentations**
- **Short oral presentations and posters**

Organizing Committee chaired by:

E. Vorobiev (F)

Members:

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M. Farid (NZ)
G. Ferrari (I)
D. Knorr (G)
O. Martin-Belloso (SP)
E. Vorobiev (F)

Conference Program

Thursday, 22 October 2009

08:00 - 09:00	Registration
09:00 - 09:20	Opening Ceremony
	Fundamental Principles, Electrophysical Properties of Bio & Food Materials 1 (chair N. Lebovka)
09:20 - 09:50	**Damijan Miklavcic, Maša Kandušer** *University of Ljubljana, Slovenia* ELECTROPORATION IN BIOLOGICAL CELL AND TISSUE *(plenary conference)*
09:50 - 10:20	**Uwe Pliquett** *Institut für Bioprozess- und Analysenmesstechnik e.V., Germany* BIOIMPEDANCE IN FOOD PROCESSING *(plenary conference)*
10:20 - 10:40	*Coffee and Poster introduction*
	Electric Field Treatments in Bio & Food Processing: Food Preservation 1 (chair S. Sastry)
10:40 - 11:10	**Olga Martin-Belloso** *University of Lleida, Spain* RECENT DEVELOPMENTS IN FOOD PRESERVATION BY PULSED ELECTRIC FIELDS *(plenary conference)*
11:10 - 11:30	**H. Jaeger, N. Meneses, D. Knorr** *Berlin University of Technology, Germany* PULSED ELECTRIC FIELD PRESERVATION OF HEAT SENSITIVE PRODUCTS – FOOD SAFETY AND QUALITY ASPECTS
11:30 - 11:50	**C. Cortes, S. Palop, F.J. Barba, M.J. Esteve, A. Frigola** *University of Valencia, Spain* THE EFFECTS OF PULSED ELECTRIC FIELDS PROCESSING ON TOTAL ANTIOXIDANT CAPACITY IN REFRIGERATED ORANGE JUICE. COMPARISON WITH HHP AND PASTEURIZED TREATED JUICE
11:50 - 12:10	**B. Roodenburg, S.W.H. de Haan, J.A. Ferreira** *Delft University, Netherlands* UTILISATION OF CONDUCTIVE PLASTIC PACKAGING FILM FOR PULSED ELECTRIC FIELD (PEF) TREATMENT
12:10 - 14:00	*Lunch*
	Electric Field Treatments in Bio & Food Processing: Process Intensification (chair O. Martin)
14:00 - 14:30	**Eugène Vorobiev** *University of Technology of Compiègne, France* ELECTRIC FIELD ENHANCED EXTRACTION AND SEPARATION PROCESSES *(plenary conference)*
14:30 – 15:00	**G.Gözke, I. Perner-Nochta, C. Posten** *Institute of Engineering in Life Sciences, University of Karlsruhe, Germany* ELECTROFILTRATION OF CHITOSAN *(plenary conference)*
15:00 – 15:20	**G. Battipaglia, F. De Vito, F. Donsì, G. Ferrari, G. Pataro** *University of Salerno, Italy* ENHANCEMENT OF POLYPHENOLS EXTRACTION FROM INVOLUCRAL BRACTS OF ARTICHOKES

15:20 – 15:40	**F. Gómez Galindo, P. Dejmek, K. Lundgren, A. G. Rasmusson, A. Vicente, T. Moritz** *Lund University, Sweden; Swedish University of Agricultural Sciences, Sweden; Universidade do Minho, Portugal* PULSED ELECTRIC FIELD-INDUCED CELL PERMEABILISATION OF POTATO TISSUE LEAD TO SUSTAINED METABOLIC CHANGES
15:40 - 16:00	*Coffee*
	***Short presentations and posters** (N. Lebovka, J.L Lanoiselle)*
16:00 - 18:30	**G. Pataro, G. Donsì, G. Ferrari** *University of Salerno, Italy; ProdAl, Centre of Competence on Agri-Food Productions, Italy* INACTIVATION OF *S. CEREVISIAE* AND *E. COLI* BY PULSED ELECTRIC FIELDS: THE EFFECT OF FLOW CONDITIONS ON TREATMENT EFFICIENCY **A. Frigola, C. Cortes, S. Palop, F.J. Barba, M.J. Esteve** *University of Valencia, Spain* STUDY OF ASCORBIC ACID DEGRADATION IN ORANGE JUICE BEVERAGES TREATED BY PULSED ELECTRIC FIELDS **I. Aguiló-Aguayo, R. Soliva-Fortuny, O. Martín-Belloso** *University of Lleida, Spain* INFLUENCE OF HIGH INTENSITY PULSED ELECTRIC FIELD CONDITIONS ON PEROXIDASE ACTIVITY IN TOMATO JUICE **U. Pliquett, M. Altmann** *Institut für Bioprozess- und Analysenmesstechnik e.V., Germany* ACTIVE ELECTRICAL ANSWER OF MEAT TO NANOSECOND PULSED ELECTRIC FIELDS **T. Nacke, A. Barthel, U. Pliquett, J. Friedrich, P. Peyerl, M. Helbig, J. Sachs** *Institut für Bioprozess- und Analysenmesstechnik e.V., Germany; MEODAT GmbH, Ilmenau, Germany; Technische Universität Ilmenau, Germany* A NEW HARD AND SOFTWARE CONCEPT FOR IMPEDANCE SPECTROSCOPY ANALYSERS FOR BROADBAND PROCESS ANALYSIS **R.Grancelli, S. Almonacid, E. Carevic, J. Moreno, R. Simpson** *Universidad del Bio-Bio, Chile - Universidad Técnica Federico Santa Maria, Chile* ACCELERATION OF OSMOTIC DEHYDRATION PROCESS THROUGH OHMIC HEATING OF FOODS **E. Carevic, R.Grancelli, S. Almonacid, R. Simpson** *Universidad Técnica Federico Santa Maria, Chile* DIFFUSIVITY MODEL IN APPLES TISSUES THROUGH OHMIC HEATING: EFFECT OF SUGAR CONCENTRATION AND TEMPERATURE **A. Demirdöven, T. Baysal** *Ege University, Institute of Natural and Applied Sciences and Engineering Faculty, Turkey* COMBINED EFFECTS OF ELECTRICAL METHODS ON ORANGE JUICE PRODUCTION **P. Rutberg, O. Kiselev, V. Kolikov, V. Snetov, A. Stogov, L. Noskin, S. Landa, A. Arutjunan, V. Egorov, A. Sirotkin** *Institute for Electrophysics and Electric Power, Russia; Petersburg Nuclear Physics Institute, Russia* INTERACTION BETWEEN METAL AND OXIDE NANOSTRUCTURES PRODUCED BY PULSED ELECTRIC DISCHARGE AND BIOMACROMOLECULES IN SOLUTION **J. Ben Ammar, E. Van Hecke, E. Vorobiev, J-L. Lanoisellé** *Université de Technologie de Compiègne, France* PULSED ELECTRIC FIELDS IMPROVE FREEZING PROCESS **G. Delaplace, P, Debreyne, I. Zaïd, S. Ghnimi** *INRA, LGPTA, Électricité de France, France* DIMENSIONLESS ANALYSIS OF JET OHMIC HEATING PROCESSES WITH FOOD MATERIAL π - SPACE INCLUDING ELECTRICAL CONDUCTIVITY DEPENDENCE WITH TEMPERATURE

N. Boussetta, T. Reess, L. Pecastaing, A. de Ferron, A. Falcimaigne-Cordin, J-L. Lanoisellé, E. Vorobiev
Univ. de Technologie de Compiègne, France; Université de Pau et des Pays de l'Adour, France
APPLICATION OF HIGH VOLTAGE ELECTRICAL DISCHARGES AT PILOT SCALE: EXTRACTION OF POLYPHENOLS FROM GRAPE POMACE

M. Turk, E. Vorobiev, A. Baron
Université de Technologie de Compiègne, France; INRA, France
PULSED ELECTRIC FIELD ASSISTED PRESSING OF APPLE MASH ON A CONTINUOUS PILOT SCALE PLANT: EXTRACTION YIELD AND QUALITATIVE CHARACTERISTICS OF CIDER JUICE

J. Altuntas, G.A. Evrendilek, M.K. Sangun, H.Q. Zhang
Abant Izzet Baysal University, Bolu, Turkey
PROCESSING OF PEACH NECTAR BY PULSED ELECTRIC FIELDS WITH RESPECT TO PHYSICAL AND CHEMICAL PROPERTIES AND MICROBIAL INACTIVATION

K.V. Loginova, M.V. Shynkaryk, N.I. Lebovka, E. Vorobiev
Université de Technologie de Compiègne, France; Ovcharenko Institute of Biocolloidal Chemistry, NAS of Ukraine
INFLUENCE OF PULSED ELECTRIC FIELD, HEATING AND THEIR COMBINATION ON CELL DISRUPTION AND SOLUTE DIFFUSION FROM CHICORY TISSUE

D. Liu, R. Savoire, E.Vorobiev
Université de Technologie de Compiègne, France
EFFECT OF CELL DISRUPTION METHODS ON THE BEHAVIOR OF DEAD-END MICROFILTRATION OF YEAST SUSPENSION

B.W.S. Souza, M.A Cerqueira, A. Casariego, J.T. Martins, J.A. Teixeira, A.A. Vicente
Universidade do Minho, Braga, Portugal; Universidad de la Habana, La Habana, Cuba
EFFECT OF MODERATE ELECTRIC FIELD IN THE PHYSICAL AND TRANSPORT PROPERTIES OF CHITOSAN COATINGS

N. Meneses, H. Jaeger, J. Moritz, D. Knorr
Berlin University of Technology, Germany
COMPARISON BETWEEN PULSED ELECTRIC FIELD AND THERMAL – EFFECT IN LACTOPEROXIDASE AND ALKALINE PHOSPHATASE INACTIVATION

A. Rayman, A. Demirdoven, T. Baysal
Ege University, Izmir, Turkey
YIELD AND QUALITY EFFECTS OF ELECTROPLASMOLYSIS APPLICATIONS ON CARROT JUICE

H.Yildiz, F.Icier, A.Demirdoven, T.Baysal
Celal Bayar University, Manisa, Turkey
OPTIMIZATION OF ELECTROPLASMOLYSIS USED IN SOURCHERRY JUICE PROCESSING

H.Yildiz, F.Icier, A.Demirdoven, T.Baysal
Celal Bayar University, Manisa, Turkey
OPTIMIZATION OF ELECTROPLASMOLYSIS USED IN SOUR CHERRY JUICE PROCESSING

H. EL Zakhem, J.-L. Lanoisellé, N. Lebovka, M. Nonus, E. Vorobiev
University of Balamand, Tripoli, Lebanon; Université de Technologie de Compiègne, France
DESTRUCTION KINETICS OF *ESCHERICHIA COLI* CELLS AFFECTED BY MODERATE PULSED ELECTRIC FIELDS

R. Rodaite-Riseviciene, G. Saulis, V. Snitka
Vytautas Magnus University, Kaunas, Lithuania
INCREASE OF THE ROUGHNESS OF THE ELECTRODE SURFACE DUE TO THE EXPOSURE TO HIGH-VOLTAGE ELECTRIC PULSES AS REVEALED BY ATOMIC FORCE MICROSCOPY

R. Saule, G. Saulis
Vytautas Magnus University, Kaunas, Lithuania
PULSES OF MILLISECOND-DURATION CREATE LARGER PORES THAN PULSES OF MICROSECOND-DURATION

G. Saulis, R. Saule
Vytautas Magnus University, Kaunas, Lithuania
COMPARISON OF ELECTROPORATION THRESHOLD
OF DIFFERENT CELL LINES

G. A. Evrendilek, Y. K. Avsar
Abant Izzet Baysal University, Bolu, Turkey
EFFECT OF PULSED ELECTRIC FIELDS ON AROMA COMPOUNDS AND SENSORY PROPERTIES OF APRICOT NECTAR

G. A. Evrendilek
Abant Izzet Baysal University, Bolu, Turkey
PULSED ELECTRIC FIELD PROCESSING OF POMEGRANATE JUICE

Z.Aydın, H.Etgu, H.Aksit, Demirtas,I, M.Hayta, M.Fincan
Erciyes University, Turkey
A COMPARATIVE STUDY ON PULSED ELECTRIC FIELD-INDUCED PERMEABILIZATION OF DIFFERENT PLANT TISSUES

J. I. Lombraña, U. Ruiz, A. O. de Retana
Univ. of Basque Country, Spain
ANALYSIS OF THE ELECTRIC FIELD AND CONVECTIVE HEATING DURING MICROWAVE DRYING OF FOODS

V.A. Mychailyk, Y.F. Snezkin, T.A. Mychailyk
Institute of Engineering Thermal Physics, Ukraine
EFFECT OF PRELIMINARY TREATMENT ON THE RATE OF DRYING AND COLOR OF TABLE BEETROOT

K.V. Loginova, L.A. Bulavin, N.I. Lebovka, E. Vorobiev
Université de Technologie de Compiègne, France; Ovcharenko Institute of Biocolloidal Chemistry, NAS of Ukraine
ON DAMAGE KINETICS OF CELLULAR BIOMATERIAL TREATED BY PULSED ELECTRIC FIELDS

N. Grimi, X. Rinville, E. Vorobiev, P. David, J. Vaxelaire
Université de Technologie de Compiègne, Comité Interprofessionnel du Vin de Champagne, CVG, Université de Pau et des Pays de l'Adour, France
EXPRESSION YIELD AND QUALITATIVE CHARACTERISTICS OF JUICE OBTAINED FROM ELECTRICALLY TREATED RED GRAPES

G.P.Sharma, S.K.Jain, R.C.Verma, V.K.Chahar, S. Bakal
College of Technology and Engineering, MPUA&T, Udaipur, India
TECHNO-ECONOMIC ANALYSIS OF A PILOT SCALE MICROWAVE DRYING UNIT FOR GARLIC CLOVES

M. Negm, E. Vorobiev, M. Sitohy
Food Tech. Res. Inst., Zagazig University, Egypt; Université de Technologie de Compiègne, France
ENHANCING THE AQUEOUS EXTRACTION OF STEVIA GLYCOSIDES FROM STEVIA REBAUDIANA LEAVES UNDER THE ACTION OF ELECTRIC DISCHARGE PRETREATMENT

Z. Ulberg, V. Podolska, L. Yakubenko, V. Ermakov
Ovcharenko Institute of Biocolloidal Chemistry, NAS of Ukraine;
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
WEAK PULSE ELECTRIC FIELDS AND BACTERIA RESPIRATION

V. Podolska, L. Yakubenko, Z. Ulberg, N. Grishchenko, V. Ermakov
Ovcharenko Institute of Biocolloidal Chemistry, NAS of Ukraine;
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
INFLUENCE OF WEAK IMPULSE ELECTRIC FIELDS ON BIOCOLLOIDS – CYANIDE DESTRUCTORS

Friday, 23 October, 2009

	Fundamental Principles, Electrophysical Properties of Bio & Food Materials 2 (chair E. Vorobiev)
09:00 - 09:30	**Nikolai Lebovka** *Ovcharenko Institute for Biocolloidal Chemistry, NAS of Ukraine* ELECTRIC FIELD INDUCED EFFECTS IN PLANT TISSUE *(plenary conference)*
	Electric Field Treatments in Bio & Food Processing: Ohmic Heating (chair E. Vorobiev)
09:30 - 10:00	**Sudhir Sastry** *The Ohio State University, USA* OHMIC HEATING TECHNOLOGIES: PRESENT AND FUTURE *(plenary conference)*
10:00 - 10:20	**J. Moreno, R. Simpson, S. Almonacid, M. Sayas, I. Segura, O. Aldana** *Universidad Técnica Federico Santa Maria, Chile; Universidad del Bio-Bio, Chile* EFFECTS OF VACUUM AND OHMIC HEATING ON THE OSMODEHYDRATION KINETICS AND MICROSTRUCTURE OF PEARS (VAR. PACKHAM`S TRIUMPH)
10:20 - 10:40	**G. Pataro, G. Donsì, G. Ferrari** *University of Salerno, Italy; ProdAl, Centre of Competence on Agri-Food Productions, Italy* THE EFFECT OF CONVENTIONAL AND OHMIC HEATING ON THE PERMEABILITY OF CELL MEMBRANE IN VEGETABLES TISSUE
10:40 - 11:00	*Coffee, Poster session*
	Electric Field Treatments in Bio & Food Processing: Food Preservation 2 (chair O. Martin)
11:00 - 11:20	**R. Somavat, A. Yousef, Y-K. Chung, S. Sastry,** *The Ohio State University, USA; Hankyong National University, Korea* EFFECT OF ELECTRICITY ON THERMOPHILIC BACTERIAL SPORES: INACTIVATION KINETICS OF *GEOBACILLUS STEAROTHERMOPHILUS* SPORES UNDER THE EFFECT OF PULSED OHMIC HEATING
11:20 - 11:40	**G. Saulis** *Vytautas Magnus University, Lithuania* ANALYSIS OF THE KINETICS OF PEF INDUCED CELL DEATH ON BASIS OF THE MECHANISM OF CELL ELECTROPORATION
11:40 - 12:00	**G. Shama, D. Bayliss, S.Perni, M.G. Kong** *Loughborough University, UK* APPLICATIONS OF COLD ATMOSPHERIC GAS PLASMAS FOR MICROBIAL DECONTAMINATION IN THE FOOD INDUSTRY
12:00 - 13:30	*Lunch*
	Applications of Electrotechnologies: testing and validation, pilot and industrial scale realizations (chair S Sastry, G. Ferrari)
13:30 - 14:00	**M. Sack, C. Eing, W. Frey, C. Schultheiss, H. Bluhm, F. Attmann, R. Stängle, A. Wolf, G. Müller, J. Sigler, L. Stukenbrock, S. Frenzel, J. Arnold, T. Michelberger** *Forschungszentrum Karlsruhe, Germany* RESEARCH ON ELECTROPORATION DEVICES IN INDUSTRIAL SCALE AT FORSCHUNGSZENTRUM KARLSRUHE AND COOPERATION PARTNERS *(plenary conference)*
14:00 - 14:20	**N. Meneses, H. Jaeger, J. Moritz, D. Knorr** *Berlin University of Technology* SIMULATION AND OPTIMIZATION OF PEF TREATMENT CHAMBER GEOMETRY CONSIDERING DIFFERENT PROCESSING CONDITIONS

14:20 - 14:40	**M. Bertuccioli, I. Rosi, S. Piccioni, G. Giovani, V. Canuti** *Università di Firenze, Italy* INFLUENCE OF ELECTRIC MICROCURRENT ON WINE CHARACTERISTICS
14:40 - 15:00	*Coffee*
15:00 - 15:20	**M. Hakimhashemi, H. Saveyn, B. de Bock, P. Saveyn, P. van der Meeren** *Ghent University, Belgium* ELECTRO-ULTRAFILTRATION OF LIPOSOMAL DISPERSIONS FOR THE REMOVAL OF TRACE MICROPOLLUANTS
15:20 - 15:40	**M. Havet, M. Orlowska, A. LeBail** *UMR GEPEA ENITIAA, Nantes, France* EFFECTS OF AN ELECTROSTATIC FILED ON ICE NUCLEATION
15:40 – 16:00	**A. Demirdöven, T. Baysal** *Ege University, Institute of Natural and Applied Sciences; Ege University, Engineering Faculty, Turkey* OHMIC HEATING APPLICATIONS ON FRUIT AND VEGETABLE PRODUCTS
16:00 – 16:20	**H. Bozkurt, F. Icier** *Ege University, Turkey* OPTIMIZATION OF OHMIC COOKING OF GROUNDED BEEF-FAT BLENDS: EXERGY APPROACH
16:20 - 16:30	*Closing remarks*

Proceedings

Accepted papers of registered authors will be published in the proceedings. Please, use the provided bfe2009paperinstruction.doc file.

Selected papers from the Conference will be published in the "**Innovative Food Science and Emerging Technologies"** after the normal review process.
(http://www.elsevier.com/wps/find/journaldescription.cws_home/620381/description)

Selected review papers will be published in the "**Food Engineering Reviews**"
(http://www.springer.com/life+sci/food+science/journal/12393)

Registration fees

Standard registration (before 30 July 2009)	300 EUR
Late registration (after 30 July 2009)	350 EUR
Students (incl. PhD students)	150 EUR
Gala Dinner on Thursday (22 October 2009)	50 EUR

The registration fee includes

Attendance at all scientific sessions, the full proceedings of the conference, mid-session coffee breaks, lunches 22 and 23 October and cocktail at the City Hall.

Payment

The registration and the payment are now available on line http://oasys.utc.fr/bfe2009/users/

Alternatively, the registration form is attached to the conference web site www.utc.fr/bfe2009 and can be sending electronically to the Conference secretariat uteam-congres@utc.fr

Location

Compiègne was one of the official residences of the Sovereigns and Emperors of France. Situated in the Valley of the river Oise, it is important tourist centre within easy reach of many castles, museums and the signatory of the WWI Armistice.

Compiègne is conventionally located for easy access by train and car from Paris (70 km), Lille (150 km) and Brussels (250 km). The International Roissy Charles de Gaulle Airport in the North of Paris is only 35 minutes away.

Transportation

By car

From Paris, highway A1 (direction Lille) to exit n°9 (Compiègne-Sud).
From Lille, highway A1 (direction Paris) to exit n°10 (Compiègne-Ouest).

By train

From Paris, railway station « Gare du Nord », take the train to Compiegne station.
From Compiegne railway station take bus n°5 to "Guy Denielou" or take a taxi.

By plane

Arrival at Orly Airport

Take ORLYVAL to station « Antony" and then RER B to reach railway station « Gare du Nord ». Then take a train (see before). You may also use a cab from ORLY to Compiegne.

Arrival at Roissy-Charles de Gaulle Airport

Take RER B to reach railway station « Gare du Nord ». Then take a train (see above). You may also use a cab from Roissy to Compiegne.

Conference site

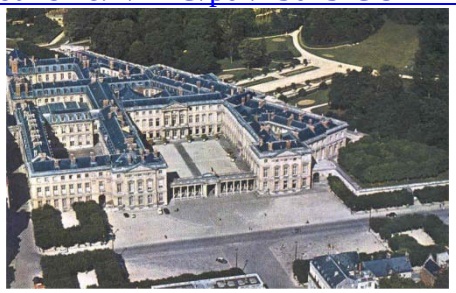
The conference venue will be the scientific campus of the University of Technology of Compiègne (UTC) – Centre Pierre Guillaumat. The campus is deserved by the buses N°5 and N°3/4 from the Compiegne train station (Gare) and from the center of city (20 min). The special bus will be available during the conference to pick up the participants from the conference hotels situated in the center of Compiegne (22 and 23 October in the morning) and for the return to the hotels and reception in the City Hall- Hôtel de ville (22 October, after sessions).

Accommodation

Conference delegates will have a choice of accommodations in different hotels located in the city centre. A list of hotels are available online at the web site of BFE 2009 **www.utc.fr/bfe2009**. Students may have reduced rates. The organisers' policy is to encourage student participation.

>>> Tourism information <<<

http://www.compiegne-tourisme.fr/IMG/pdf/23043-GUIDE-COMPIEGNE-2009.pdf



The chateau of Compiègne

Contacts

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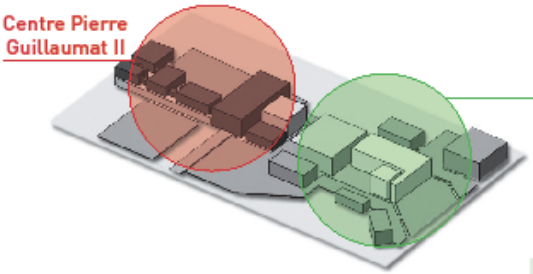

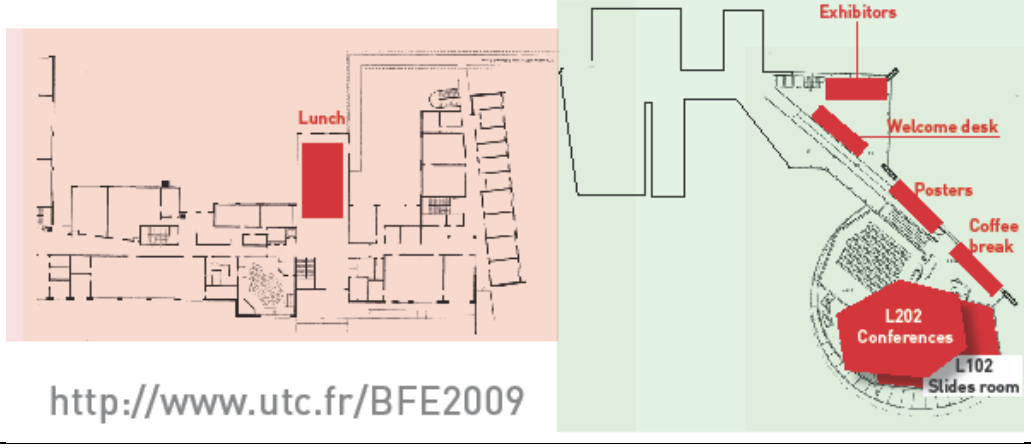

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