



This is an invitation to attend :

Energy: A challenge for 21st century physics

An EPS/SFP conference
June 2nd to 5th 2008

Background and goal:

Energy is certainly one of the central problems of the 21st century. Energy scarcity, geopolitical frictions, security of supply and climate change are issues which dominate many political and economic debates. Modern energy technologies rely in many aspects on the insights and findings of physics. This is expected to be also true for new systems, which are currently under development or will be developed in the future. The relation of physics to the energy system in general and energy technologies in particular will be the main focus of the conference.

Organised as a dialogue between researchers from public and private institutions, it is aimed at demonstrating the impact of physics on all energy related issues (production, saving, handling, wastes, environmental impact). Energy technologies are to be scrutinised according to their basic potential if more research and development is provided. The benefits of more research will be evaluated in all cases. The interface between the physics potentials and the expected technological and economic performance is to be analysed.

Organizing committee

Prof. H. Bruhns, DPG Energie-Arbeitskreis, Dr. Taj Panesor, IOP, Prof. J. Vaagen, Head of Technology Group, EPS, Dr Michèle Leduc, President S.F.P., Prof. Jacques Treiner (U. Paris 6), Dr Sylvain David, SFP energy and environment group, Dr Claude Stephan, IPN Orsay

Dr. Thomas Hamacher, Coordinator of EPS energy working group, Prof. Jean-Louis Bobin (U. Paris 6)

Programme (subject to minor changes)

Monday June 2nd

Introduction to the energy and climate debate

11h	The energy issue	TBA
11h 45	Challenges of the energy system	J. Sample¹ , SHELL
16h	Geopolitics	Friedmann Müller S. W. P., Berlin
16h 45	Energy and Environment	H. Nifenecker LPSC/CNRS, Grenoble
17h 30	Gas, Oil and uranium resources	B. Cramer BGR
18h 15	The relation between economic growth and electricity demand	T. Traber DIW

After dinner

Historical perspective

200 years after the industrial revolution, what was the role of energy	J. Streb U. Dusseldorf
Historical overview about the role of physics in the development of energy technologies	R. Balian Académie des Sciences, Paris

Tuesday June 3d

Environment

9h	200 years after Fourier and Saussure, the status of the climate debate	P. Bessemoulin Meteo France, Toulouse
9h 45	Observation of the climate	J. Burrows U. Bremen
11h	Climate Models	H. Held Potsdam Institut für Klimafolgenforschung
11h 45	Storage of CO ₂ : risks and environmental impacts	Schilling Uni Harburg
16h 30	Renewable energies and weather	D. Heinemann , Uni Oldenburg
17h 15	Radioactive emissions	TBA
18n	Energy and climate	<i>Panel discussion</i>

After dinner

The future role of superconductivity	Noe, KIT
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¹ **Boldface** means confirmed. TBA = to be announced

Wednesday June 4th

Electricity networks and generation

9h	Heat and electricity demand of industry	M. Patel Uni Utrecht
9h 45	Global Link: a global electricity network	Ch. Krane , RWTH Aachen
11h	Back to the future: advanced coal power plants	H. Splitthoff TU München
11h 45	Renewables	T.B.A.
16h	Solar photovoltaic	J.F. Guillemoles ENSCP/EDF

Nuclear electricity

16h 45	The future of conventional nuclear power	D. Knoche Westinghouse
17h 30	From generation IV to an integrated nuclear system	O. Meplan IPNO
18h 15	Fusion	D. Ward UKAEA Culham

After dinner

Houses and heat networks

The physics of houses: how to build a house without heat demand	R. Hastings AEU, GmbH
Heating technologies: from micro generation to advanced heat punps	C. Schweigler ZAE Bayern, Garching

Thursday June 5th

9h	More electricity for less CO2 : hints for research	Y. Bamberger EDF
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Hydrogen, storage

9h 45	Hydrogen cycle overview	M. Fontecave (N. Bardi) Uni Grenoble
11h	Hydrogen economy	Th. Alleau AFH
11h 45	Fuel cells	D. Stolten , Jülich
14h	Lithium batteries	G. Hörpel EVONIK

Transport

14h 45	The physics of roadtransport	M. Schreckenber g U. Duisburg-Essen
15h 30	High speed trains	J. Siegmann Technical University, Berlin
16h 15	Future of aviation	G. Ville Académie Nationale de l'Air et de l'Espace

Posters are foreseen to be displayed during the conference.

Practical Informations

More informations and registration :

http://www.sfpnet.fr/front_office/actu_en_detail.php?id_actu=297

How to contact the School?

Website :

<http://w3houches.ujf-grenoble.fr/>

Telephone (from Monday to Friday at office hours): from abroad: **33 4 50 54 40 69**, from France: **04 50 54 40 69** , **Fax**: from abroad: **33 4 50 55 53 25**, from France: **04 50 55 53 25** , **E-mail**: secretariat.houches@ujf-grenoble.fr

Mail: ? Ecole de Physique des Houches? , La Côte des Chavants, ? F-74310 Les Houches? FRANCE

You may contact participants at meals hours (12h30-13h30) (19h30-20h30) by calling the restaurant at **33 4 50 54 41 24**

Facilities

- a library with the main scientific journals (paper version or online) and some reference books
- three working rooms with blackboards
- projectors for standard slides and for transparencies
- a video-tape recorder VHS + monitor multi-system (NTSC, PAL, SECAM)
- a video projector
- a photocopying machine
- a fax
- an Internet link, currently 2 Mb/s
- desktop computers (10 PCs + 2 Macs) and a B&W Laser Printer
- hubs to connect laptops to the local network
- a wireless network.

Your Stay

Meals are taken at the school dining room. Drinks are not included.? Coffee, tea (free!) and liqueurs are available at the cafeteria.? Breakfast: 8:00 am to 8:45 am ; Lunch: 12:30 am ; Dinner: 7:30 pm. ? Accompanying persons who have registered can take their meals at the restaurant (8 euros per meal). ? The cafeteria has a piano, baby-foot and table tennis. ? ? Participants are housed in "chalets" in individual bedrooms (electricity: AC, 50Hz, 220V). ? A flashlight is handy at night ; the school chalets are scattered on the mountainside and outside lights may be poor (power failures, storms,...).

Weather

The altitude of the school is 1150 m. Temperature may range from -15 to 5°C in winter and from 5 to 25°C in summer. Sport clothes are preferable. Warm sweater(s), rain gear, good walking shoes and home shoes are necessary. [weather forecast for the next days](#)

Access (check updated links in the "Venir aux Houches" page on our french website)

By plane: Geneva Airport is 1 hour drive from les Houches.

- The simplest way is to use a private limousine service (approximately 40 euros up to the school). See for example <http://www.act-chamonix.com>, <http://www.a-t-s.net> or <http://www.chamonixshuttles.com/> (book at least three days in advance)
- There is a regular bus service between Geneva and Les Houches (only once or twice a day): <http://www.coach-station.com>. One should then take a taxi for the last 5 kms from the Les Houches village to the school (the total cost is similar to that of the limousine).
- One can also travel from Geneva to Les Houches by train (+ taxi from the train station to the School), but it is quite complicated (3 connections) and long (go through Annemasse on the French side or through Martigny on the Swiss side).

By train: arrival at the Les Houches station, with one change at Saint-Gervais (from France), or at Martigny (from Switzerland). There are about 10 trains per day between St Gervais and Les Houches ([schedules](#), 20mn trip). Then we strongly advise you to take a taxi (tel. +33 (0) 6.12.35.30.72 or +33 -4-50 54 41 09) to go up to the school (5km).? ? **By road:** Les Houches are easily accessible from France (A41 highway), from Switzerland (Martigny and Col des Montets) and from Italy through the Mont Blanc Tunnel.

- From Geneva and Le Fayet: 8km before Chamonix, 300 m after passing under the tunnel, bear right by the first road out for "Les Houches Bellevue". When arriving at the cable car station "Bellevue", turn right and continue upwards (roughly 2 km starting from the teleferic). 500m after the cable car station "Prarion", turn left and follow small arrows at crossroads. Continue up to the end of Route de la Côte des Chavants. Here you are!
- From Chamonix: bear right for "Les Houches-Chef-Lieu", turn right in Les Houches, go ahead at the cable car station "Bellevue". Then proceed as above.
- Cars may be rented from Geneva and from Chamonix, it is useful to make a reservation.