DE LA RECHERCHE À L'INDUSTRIE



# **Kick-off Meeting**

Enabling Research Project on Kinetic Modelling of Runaway Electron Dynamics (CEA-09, 2015-2017)

Y.Peysson

CEA, IRFM, F-13108, Saint-Paul-lez-Durance, France





#### **Outline**



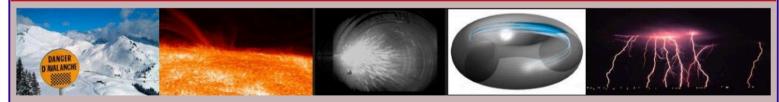
- The ERP runaway information access
- Budget status
- REM-2015 meeting 17-19th of June, Pertuis, France
- Status and progresses for each physics topics
- Miscellaneous open questions (remote meeting frequency, duration, formay,...)





# A single website address: <a href="http://erp.runaway.free.fr">http://erp.runaway.free.fr</a> A single electronic mail address: erp.runaway@free.fr

© EUROfusion USION Enabling Research Project on Kinetic Modelling of Runaway Electron Dynamics (CEA-09, 2015-2017)



#### **Objectives**

Welcome on the webpage of the EUROFUSION Enabling Research Project on Kinetic Modelling of Runaway Electron Dynamics. All details on the Enabling Research project ER15-CEA-09 are available here.

#### Remote meetings:

2015-03-06, 14:00-16:00: Kick-off meeting. The meeting program and the videoconferencing details are available here.

#### Annual meetings:

- 2015: the 3rd Runaway Electron Meeting (REM-2015) will take place from June, the 17th to the 19th of 2015, at Pertuis (France). For registration or all details, please click here.
- 2014: 2nd Runaway Electron Meeting (REM-2014), Chalmers University, Göteborg (Sweden).
- 2013: 1st Runaway Electron Meeting (REM-2013), Chalmers University, Göteborg (Sweden).

#### **Progress reports:**

In order to simplify the management of the Enabling Research project ER15-CEA-09 and track progresses, participants to the project are highly encouraged to write a brief summary of their activities every three months, and upload a file (powerpoint, word or pdf) to illustrate it. With your ID's (the same as for the REM annual meetings), you can read contributions of other participants, and read/write your own contributions. It is possible to export the table in an Excel format, for convenience, and download the files. Available soon Click here to access to the activity reports page.

#### <u>Miscellaneous</u>

#### Support:

In case of problem or for any issue, please contact the principal investigator.





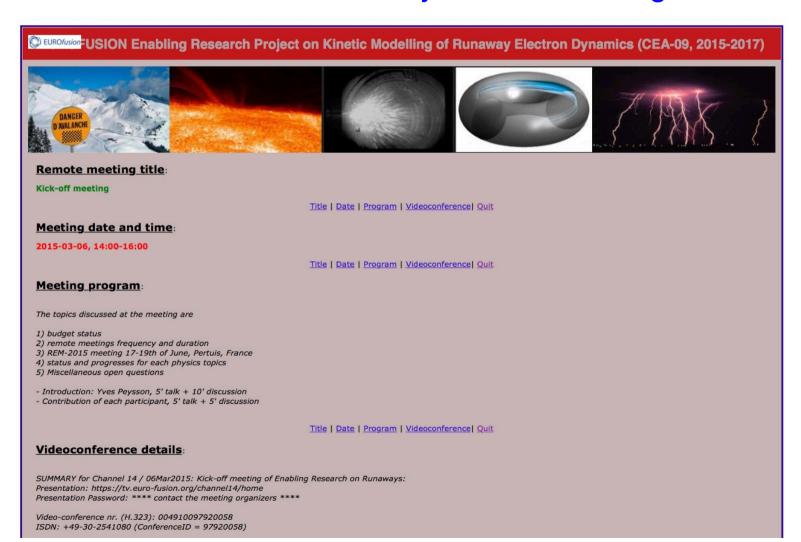
## EUROfusion wiki pages for ERP runaway

	2 Ypeysson my talk my preferences my watchlist my contributions log out										
	page discussion view source history move watch										
© EUROfusion	ER15-CEA-09										
	Kinetic modelling of runaway electron dynamics										
	Principal Investigator:										
navigation	Yves Peysson (CEA)										
Main page     Community portal	Project Participants:										
Current events Recent changes Random page	Girogos Anastassiou (NTUA), Jean-François Artaud (CEA), Adám Budai (BME), Joan Decker (CRPP), Ola Embréus (CU), Tünde Fülöp (CU)], Eero Hirvijoki (CU), Kyriakos Hizanidis (NTUA), Yannis Kominis (NTUA), Taina Kurki-Suonio (AU), Philipp Lauber (IPP-Garching), Roland Lohner (BME), Jan Mlynár (IPP-Prag), Sarah Newton (CCFE), Emelie Nilsson (CEA), Gergely Papp (IPP-Garching), Gergo Pokol (BME), François Saint-Laurent (CEA), Cristian Sommariva (CEA), Adam Stahl (CU), Panagiotis Zestanakis (NTUA)										
= Help	Participating Research Institutions:										
search Go Search	Aalto University, Finland &, BME – NTI, Budapest, Hungary &, Chalmers University, Göteborg, Sweden &, Culham Centre for Fusion Energy, UK &, Institute for Plasma Physic, Prag, Czech Republic &, IRFM-CEA, Cadarache, France &, Max-Planck Institute for Plasma Physics, Garching, Germany &, National Technical University of Athens, Greece &, CRPP, Swiss Federal Institute of Technology, Switzerland &										
toolbox	External Participants:										
■ What links here	Eric Nardon (CEA) ≡3, Cédric Reux (CEA) ≡3,										
Related changes     Upload file	EUROFUSION Publication rules:										
Special pages	EUROFusion publication rules by Kinga Kàl, File:Kgal 20150129 ER.pdf										
Printable version	Meeting:										
■ Permanent link	The 3rd Runaway Electron Meeting (REM 2015) will takes place the 17-19th of June 2015 at Pertuis, France										
	All details (registration, accommodation, program,) will be soon available here .										
Ž	EURO-fusion support:										
	For participants of the EURO-fusion Enabling Research project ER15-CEA-09 who wants to travel for the project (REM meeting, collaboration,) and get some funding, please fill the standard Mission Application form which is available here . If people sit in the fusion lab (previous Associations) the users website should be accessible without any password. Outside a password is needed that can be applied for here .										
	Objectives:										
	One of the most remarkable characteristics setting fusion plasmas aside from neutral gases is that the collisional friction force acting on suprathermal electrons decreases with the electron velocity. Therefore, in the presence of a parallel electric field larger than some critical value, electrons with sufficient initial velocity will be continually accelerated. The so-called runaway electrons may reach energies in the 10 MeV range [1,2].										





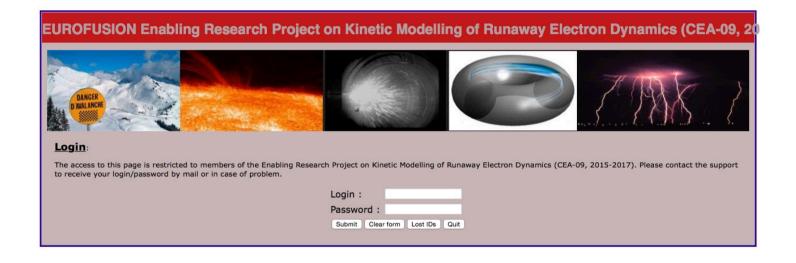
# Periodic ERP runaway remote meetings







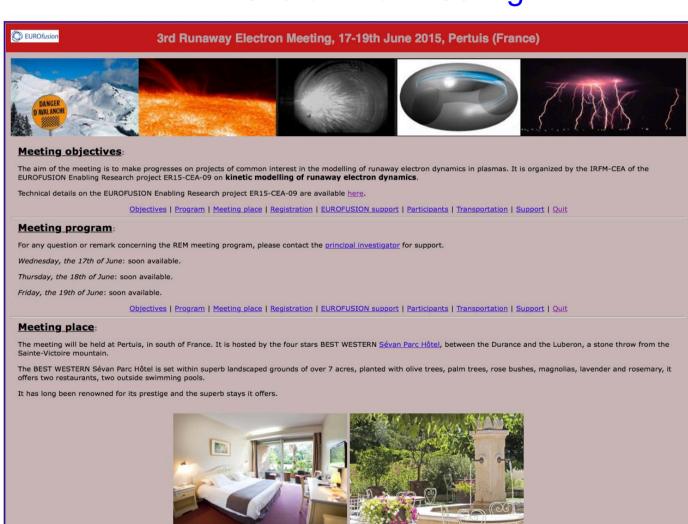
### Progress reports (available very soon)







#### REM-2015 annual meeting







### Three years ERP

1-Total Budget: ~ 811 k€

2-Total manpower: ~ 784.6 €, travel: ~ 26.4€

3-EUROfusion contribution: ~ 529 k€ (travel 5%)

#### **Changes in personnel**

- 1-The change of personnel shall not affect in terms of ppy more than 25% of the total ppy involved in the project.
- 2-The resources per laboratory shall stay the same (or less)
- 3-The financial table of the project has to be up-dated.
- 4-A major change will require a new assessment!





Proposal Reference	Column1	First Name	Surname	Beneficiary	Email	Phone	Year	Total Manpower (ppy)	Salary (k €/year)	Manpower costs (k€)	Manpower Consortium contribution (k€)	Total Hardware (k€)
CfP-WP15-ENR-	PI	Yves	Peysson	CEA	yves.peysson@cea.fr	33442256290	2015	0.54	112.00	60.11	37.57	
01/CEA-09 CfP-WP15-ENR- 01/CEA-09	PI	Yves	Peysson	CEA	yves.peysson@cea.fr	33442256290	2016	0.54	112.00	60.11	37.57	
CfP-WP15-ENR- 01/CEA-09	PI	Yves	Peysson	CEA	yves.peysson@cea.fr	33442256290	2017	0.54	112.00	60.11	37.57	
CfP-WP15-ENR- 01/CEA-09	С	Emelie	Nilsson	CEA	emelie.nilsson@cea.fr	33442252476	2015	0.33	38.00	12.67	7.92	
CfP-WP15-ENR- 01/CEA-09	С	Emelie	Nilsson	CEA	emelie.nilsson@cea.fr	33442252476	2016	0.33	38.00	12.67	7.92	
CfP-WP15-ENR- 01/CEA-09	С	Emelie	Nilsson	CEA	emelie.nilsson@cea.fr	33442252476	2017	0.33	38.00	12.67	7.92	
CfP-WP15-ENR- 01/CEA-09	С	François	Saint Laurent	CEA	francois.saint-laurent@cea.fr	33442256140	2015	0.18	112.00	20.16	12.60	]]
CfP-WP15-ENR- 01/CEA-09	С	François	Saint Laurent	CEA	francois.saint-laurent@cea.fr	33442256140	2016	0.18	112.00	20.16	12.60	
CfP-WP15-ENR- 01/CEA-09	С	François	Saint Laurent	CEA	francois.saint-laurent@cea.fr	33442256140	2017	0.18	112.00	20.16	12.60	
CfP-WP15-ENR- 01/CEA-09	С	Jean- François	Artaud	CEA	jean-francois.artaud@cea.fr	33442256215	2015	0.06	112.00	6.72	4.20	
CfP-WP15-ENR- 01/CEA-09	С	Jean- François	Artaud	CEA	jean-francois.artaud@cea.fr	33442256215	2016	0.06	112.00	6.72	4.20	
CfP-WP15-ENR- 01/CEA-09	С	Jean- François	Artaud	CEA	jean-francois.artaud@cea.fr	33442256215	2017	0.06	112.00	6.72	4.20	
CfP-WP15-ENR- 01/CEA-09	С	Cristian	Sommariva	CEA	jean-francois.artaud@cea.fr	33442256215	2015	0.07	38.00	2.53	1.58	
CfP-WP15-ENR- 01/CEA-09	С	Cristian	Sommariva	CEA	jean-francois.artaud@cea.fr	33442256215	2016	0.07	38.00	2.53	1.58	
CfP-WP15-ENR- 01/CEA-09	С	Cristian	Sommariva	CEA	jean-francois.artaud@cea.fr	33442256215	2017	0.07	38.00	2.53	1.58	





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CfP-WP15-ENR- 01/CEA-09	С	Tünde	Fülöp	VR	tunde@chalmers.se	46317723180	2015	0.18	144.00	25.92	16.20	
CfP-WP15-ENR- 01/CEA-09	С	Tünde	Fülöp	VR	tunde@chalmers.se	46317723180	2016	0.18	144.00	25.92	16.20	
CfP-WP15-ENR- 01/CEA-09	С	Tünde	Fülöp	VR	tunde@chalmers.se	46317723180	2017	0.18	144.00	25.92	16.20	
CfP-WP15-ENR- 01/CEA-09	С	Adam	Stahl	VR	stahla@chalmers.se	46317723180	2015	0.13	64.00	8.53	5.33	
CfP-WP15-ENR- 01/CEA-09	С	Adam	Stahl	VR	stahla@chalmers.se	46317723180	2016	0.13	64.00	8.53	5.33	
CfP-WP15-ENR- 01/CEA-09	С	Adam	Stahl	VR	stahla@chalmers.se	46317723180	2017	0.13	64.00	8.53	5.33	
CfP-WP15-ENR- 01/CEA-09	С	Eero	Hirvijoki	VR	eeroh@chalmers.se	46317723180	2015	0.33	34.00	11.33	7.08	
CfP-WP15-ENR- 01/CEA-09	С	Eero	Hirvijoki	VR	eeroh@chalmers.se	46317723180	2016	0.33	34.00	11.33	7.08	
CfP-WP15-ENR- 01/CEA-09	С	Eero	Hirvijoki	VR	eeroh@chalmers.se	46317723180	2017	0.33	34.00	11.33	7.08	
CfP-WP15-ENR- 01/CEA-09	С	Ola	Embreus	VR	embreus@student.chalmers.se	46317723180	2015	0.80	56.60	45.28	28.30	
CfP-WP15-ENR- 01/CEA-09	С	Ola	Embreus	VR	embreus@student.chalmers.se	46317723180	2016	0.80	56.60	45.28	28.30	
CfP-WP15-ENR- 01/CEA-09	С	Ola	Embreus	VR	embreus@student.chalmers.se	46317723180	2017	0.80	56.60	45.28	28.30	





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CfP-WP15-ENR- 01/CEA-09	С	Gergö	Pokol	WIGNER	pokol@reak.bme.hu	46317723180	2015	0.31	40.00	12.53	7.83	
CfP-WP15-ENR- 01/CEA-09	С	Gergö	Pokol	WIGNER	pokol@reak.bme.hu	46317723180	2016	0.31	40.00	12.53	7.83	
CfP-WP15-ENR- 01/CEA-09	С	Gergö	Pokol	WIGNER	pokol@reak.bme.hu	46317723180	2017	0.31	40.00	12.53	7.83	
CfP-WP15-ENR- 01/CEA-09	С	Adam	Budai	WIGNER	budai.adam@reak.bme.hu	46317723180	2015			0.00	0.00	
CfP-WP15-ENR- 01/CEA-09	С	Adam	Budai	WIGNER	budai.adam@reak.bme.hu	46317723180	2016			0.00	0.00	
CfP-WP15-ENR- 01/CEA-09	С	Adam	Budai	WIGNER	budai.adam@reak.bme.hu	46317723180	2017			0.00	0.00	
CfP-WP15-ENR- 01/CEA-09	С	Roland	Lohner	WIGNER	lohner.roland@gmail.com	46317723180	2015	0.00	0.00	0.00	0.00	
CfP-WP15-ENR- 01/CEA-09	С	Roland	Lohner	WIGNER	lohner.roland@gmail.com	46317723180	2016	0.00	0.00	0.00	0.00	
CfP-WP15-ENR- 01/CEA-09	С	Roland	Lohner	WIGNER	lohner.roland@gmail.com	46317723180	2017	0.00	0.00	0.00	0.00	
CfP-WP15-ENR- 01/CEA-09	С	Joan	Decker	EPFL	joan.decker@epfl.ch	46317723180	2015	0.00	150.00	0.50	0.31	
CfP-WP15-ENR- 01/CEA-09	С	Joan	Decker	EPFL	joan.decker@epfl.ch	46317723180	2016	0.00	150.00	0.50	0.31	
CfP-WP15-ENR- 01/CEA-09	С	Joan	Decker	EPFL	joan.decker@epfl.ch	46317723180	2017	0.00	150.00	0.50	0.31	
CfP-WP15-ENR- 01/CEA-09	С	Taina	Kurki-Suonio	VTT	taina.kurki-suonio@aalto.fi	46317723180	2015	0.18	93.23	16.78	10.49	
CfP-WP15-ENR- 01/CEA-09	С	Taina	Kurki-Suonio	VTT	taina.kurki-suonio@aalto.fi	46317723180	2016	0.18	93.23	16.78	10.49	
CfP-WP15-ENR- 01/CEA-09	С	Taina	Kurki-Suonio	VTT	taina.kurki-suonio@aalto.fi	46317723180	2017	0.18	93.23	16.78	10.49	





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CfP-WP15-ENR- 01/CEA-09	С	Philip	Lauber	IPP	pwl@ipp.mpg.de	46317723180	2015	0.00	89.02	0.30	0.19	
CfP-WP15-ENR- 01/CEA-09	С	Philip	Lauber	IPP	pwl@ipp.mpg.de	46317723180	2016	0.00	89.02	0.30	0.19	
CfP-WP15-ENR- 01/CEA-09	С	Philip	Lauber	IPP	pwl@ipp.mpg.de	46317723180	2017	0.00	89.02	0.30	0.19	
CfP-WP15-ENR- 01/CEA-09	С	Gergeli	Papp	IPP	ppg@ipp.mpg.de	46317723180	2015	0.00	72.00	0.24	0.15	
CfP-WP15-ENR- 01/CEA-09	С	Gergeli	Papp	IPP	ppg@ipp.mpg.de	46317723180	2016	0.00	72.00	0.24	0.15	
CfP-WP15-ENR- 01/CFA-09	С	Gergeli	Papp	IPP	ppg@ipp.mpg.de	46317723180	2017	0.00	72.00	0.24	0.15	
CfP-WP15-ENR- 01/CEA-09	С	Sarah	Newton	CCFE	sarah.newton@ccfe.ac.uk	46317723180	2015	0.18	60.56	10.90	6.81	
CfP-WP15-ENR- 01/CEA-09	С	Sarah	Newton	CCFE	sarah.newton@ccfe.ac.uk	46317723180	2016	0.18	60.56	10.90	6.81	
CfP-WP15-ENR- 01/CEA-09	С	Sarah	Newton	CCFE	sarah.newton@ccfe.ac.uk	46317723180	2017	0.18	60.56	10.90	6.81	





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CfP-WP15-ENR- 01/CEA-09	С	Yannis	Kominis	NCSRD	gkomin@central.ntua.gr	46317723180	2015	0.18	30.04	5.41	3.38	
CfP-WP15-ENR- 01/CEA-09	С	Yannis	Kominis	NCSRD	gkomin@central.ntua.gr	46317723180	2016	0.18	30.04	5.41	3.38	
CfP-WP15-ENR- 01/CEA-09	С	Panagiotis	Zestanakis	NCSRD	panosz@central.ntua.gr	46317723180	2015	0.30	15.50	4.60	2.87	
CfP-WP15-ENR- 01/CEA-09	С	Panagiotis	Zestanakis	NCSRD	panosz@central.ntua.gr	46317723180	2016	0.30	15.50	4.60	2.87	
CfP-WP15-ENR- 01/CEA-09	С	Panagiotis	Zestanakis	NCSRD	panosz@central.ntua.gr	46317723180	2017	0.30	15.50	4.60	2.87	
CfP-WP15-ENR- 01/CEA-09	С	Giorgos	Anastassiou	NCSRD	ganastas@central.ntua.gr	46317723180	2015	0.31	26.60	8.33	5.21	
CfP-WP15-ENR- 01/CEA-09	С	Giorgos	Anastassiou	NCSRD	ganastas@central.ntua.gr	46317723180	2016	0.31	26.60	8.33	5.21	
CfP-WP15-ENR- 01/CEA-09	С	Giorgos	Anastassiou	NCSRD	ganastas@central.ntua.gr	46317723180	2017	0.31	26.60	8.33	5.21	
CfP-WP15-ENR- 01/CEA-09	С	Kyriakos	Hizianidis	NCSRD	kyriakos@central.ntua.gr	46317723180	2015	0.18	50.76	9.14	5.71	
CfP-WP15-ENR- 01/CEA-09	С	Kyriakos	Hizianidis	NCSRD	kyriakos@central.ntua.gr	46317723180	2016	0.18	50.76	9.14	5.71	
CfP-WP15-ENR- 01/CEA-09	С	Kyriakos	Hizianidis	NCSRD	kyriakos@central.ntua.gr	46317723180	2017	0.18	50.76	9.14	5.71	





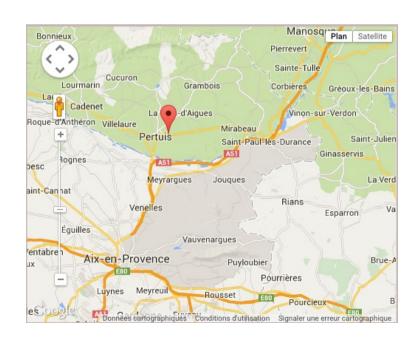
Website: http://erp.runaway.free.fr/REM\_2015/registration.php

Meeting place: Hôtel Sevan (4\*)

Before EPS conference

#### Registration will be closed on Friday, April, the 3rd of 2015









# 1-Limited number of rooms. Register asap!

- 2- The fees are automatically calculated and should be paid to the CEA (the mail of confirmation you receive with the IDs explain all details)
- 3-Members of ERP will receive also an invitation letter from CEA for EUROfusion support

I wish to re	gister as a meeting attendee (incl. lunch)
☑ Wed	nesday, the 17th of June (incl. dinner)
Thu	sday, the 18th of June (incl. dinner)
✓ Frid	y, the 19th of June
I will be sta	ying at the Parc Sévan hotel
O No	
O Yes	alone
Yes	with an accompanying person
Nights (inc	breakfast)
☑ Tue	day, the 16th of June
☑ Wed	nesday, the 17th of June
☑ Thu	sday, the 18th of June
Type of roo	ns ( <b>5/5</b> campus rooms available, <b>22/25</b> single or double rooms available)
	le campus room
O Sing	le room
O Dou	ole room
First and la	t names of the accompanying (if any)
FIRST and la	t names of the accompanying (if any r
Special die	ary or accessibility needs:
Total Fees	513 Euros (€)
	<u> </u>
☐ I am pa	rticipant of an EUROFUSION Enabling Research Project 2015
Submit	Clear form
Gabinit	Olda Iolili



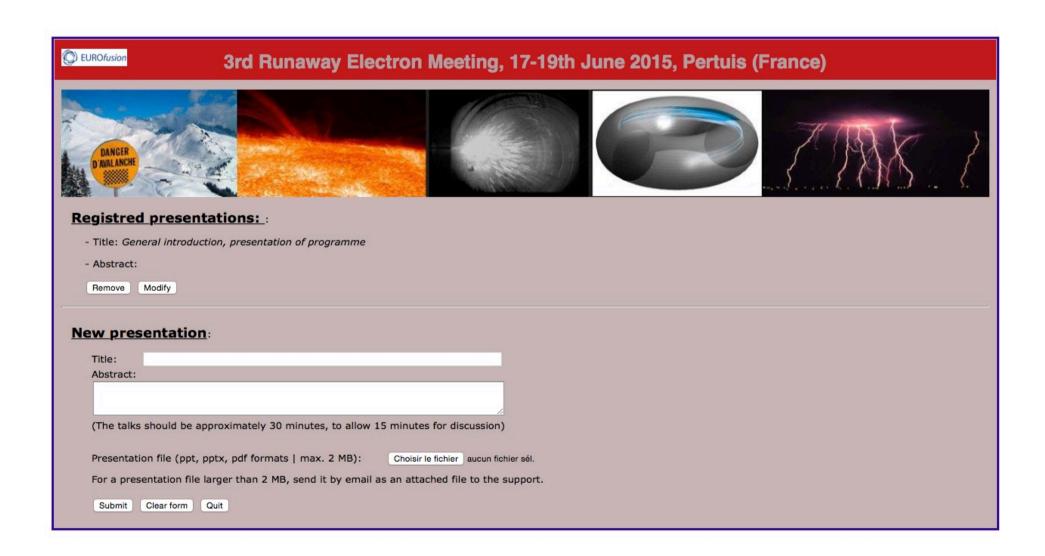


Up to date list of participants. You can modify some registrations parameters yourself and **propose presentations** (title, abstract, upload).

<u>List of participants</u> :
Registred participants status is indicated in this section regarding the fees.
With the login and password, it is possible to update registration parameters, propose one or several presentations (title and a short abstract are required) and upload the corresponding file (anytime).
1) Artaud Jean-François (CEA, France) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation
2) Fülöp Tünde (Chalmers University of Technol, Sweden) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation
3) Granetz Robert (MIT, US) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation
4) Icard Valérie (CEA, France) belongs to the local organizing committee of the REM meeting. Manage registration parameters
5) Nardon Eric (CEA, France) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation
6) Nilsson Emelie (CEA, France) attends the REM meeting. Update registration parameters  Add/Update/Remove a presentation
- Title: Kinetic modelling of runaway electron formation in non-disruptive tokamak plasmas
- Filename: None
7) Paprok Richard (IPP CAS CZ, Czech Republic) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation
8) Peysson Yves (CEA, France) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation
- Title: General introduction, presentation of programme
- Abstract:
- Filename: None
9) Saint-Laurent François (CEA, France) attends the REM meeting. Update registration parameters Add/Update/Remove a presentation











Website: http://erp.runaway.free.fr/REM\_2015/registration.php

Registration will be closed on Friday, April, the 3rd of 2015



### So advertise around you for the REM-2015 meeting!

- 1-Physics of runaway electrons
- 2-Modeling runaway electron dynamics
- 3-Diagnostics specific to runaway electrons
- 4-Tokamaks experiments: COMPASS, JET, EAST, HL-2A





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- 2-Modeling runaway electron dynamics
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- 4-Tokamaks experiments: COMPASS, JET, EAST, HL-2A
- *5-...*