#### Interdisciplinarity conference on many-body theory

Third general congress of the NBODY research network

Nancy — June 16 to 18, 2025

 $N{ ext{-}body}$  problem in quantum chemistry, condensed matter physics, nuclear physics, and mathematics



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### I. Presentation of the NBODY research network, and aim of this congress

The NBODY research network was created in January 2019. It aims at bringing together the community working on the N-body problem from the viewpoint of quantum chemistry, condensed-matter physics, nuclear physics, and mathematics. The idea is to foster the development of new computational methods in quantum mechanics, the transfer of these methods from one discipline to another, and their efficient computer implementations. To reach this goal, the research network organizes interdisciplinary conferences and workshops. It is also particularly involved in training students and researchers via the organization of several interdisciplinary international schools. The NBODY research network has a web site that can be accessed by clicking [here].

As for the first two general NBODY congresses, the aim of this event is to reinforce the already existing collaborations, and to support the initiation of new ones. Another goal is to favor the integration of PhD students, postdocs, and young researchers in the community. Finally, we would like to facilitate the dialogue between the different topics by including presentations with a pedagogical perspective.

#### II. General information and venue

Campus: Faculté des Sciences et Technologies, Vandoeuvre-lès-Nancy

Building: Victor Grignard Lecture room: Amphi VG8

#### II.1 Reaching Nancy

The town of Nancy can be reached through two railway stations of the French national railway company — the SNCF (check their [web site] for ticket reservation) —: the "Nancy gare SNCF" located at the city-center; or the "Lorraine TGV" station with a connection bus line toward the city center of Nancy. The "Nancy Gare SNCF" in the city center is actually located at 1h30 by train from Paris and Luxembourg.

The three closest airports are the [Luxembourg airport], the [Bâle-Mulhouse airport], and the [Lorraine airport]. The Lorraine airport is located between Nancy and Metz.

#### II.2 Reaching the campus

The lectures will take place on the "campus de la faculté des sciences et technologies de Nancy". The campus can be reached from the city center using one of the two following local public transport lines:

- (i) the Tempo 3 (**T3**) line from the city center (for example, from the "Tour Thiers Gare stop") in the direction of Villers Campus Science. The building is next to the terminus stop;
- (ii) the Tempo 1 (**T1**) from the city center (for example, from the "Gare Pierre Semard" stop) in the direction of Vandoeuvre Brabois-Hôpitaux. The campus is next to the "Vélodrome-Callot" and the "Le Reclus" stops.

You can consult the map of the public transport network of Nancy (STAN) by clicking [here]. The schedules files for the T3 and T1 lines can be consulted by clicking [here]. For each of these lines, the period of interest for us is the Green one (*Période verte* — *semaine scolaire*, du lundi au vendredi). For your information, the two target schedule files [extracted on April 28, 2025] are also given at the end of this document.

#### II.3 Reaching the lecture room

The lectures will take place in the Victor Grignard building, in the VG8 amphitheater ("Amphi VG8"). A map of the campus and a map of the building are given at the end of the present document.

#### II.4 Before and during the lectures

We leave it to the participants to arrange their own accommodation. In case of emergency, please reach this phone number: 0033 625 899 778. Do not hesitate to use the local-contact e-mails of [Séverine Bonenberger], [Thibaud Etienne] or [Jérémy Morere] in case you have any question.

#### III. Registration and abstract submission

#### III.1 Registration

For organizational purposes, registration to the school is free of charge but mandatory. Please send an e-mail to [NBODY2025@proton.me]. In your registration e-mail, please provide us with the following:

- 1. First Name
- 2. Last name
- 3. Affiliation

Registration is open until June 2, 2025 in the limit of a hundred participants.

#### III.2 Abstract submission

Please do not hesitate to send us your request for a contributed talk or a poster presentation. You can download the template you need for your request (contributed talk or poster presentation), either in the Word or LaTeX format, at the following link: [LINK].

Abstract submission is open until May 15, 2025. To submit your abstract, please send it to the following e-mail address: [NBODY2025@proton.me]. The scientific committee of the congress will then process your request and you will receive an answer by June 2, 2025.

#### IV. Provisional schedule

In the following table, "IT–XX" means "Invited talk XX" and "CT–XX" means "Contributed talk XX" with the number (XX) corresponding to the number of the abstract that you will find in the final version of this booklet; "TBA" means "To be announced".

			4 7.770
Day 1	June 16, 2025		Amphi VG8
12h00		Organizing committee	Welcoming cocktail
13h30		Matteo Gatti	IT-01
14h00		TBA	CT-01
14h30		Christian Schilling	IT-02
15h00		TBA	CT-02
15h30			Coffee break
16h00		Ewa Pastorczak	IT-03
16h30		TBA	CT-03
17h00		Fabris Kossoski	IT-04
17h30		TBA	CT-04
18h00			Poster session 1
19h00			Dinner
Day 2	June 17, 2025		$\overline{Amphi}$ $\overline{VG8}$
8h30		Mikael Frosini	IT-05
9h00		TBA	CT-05
9h30		Guillaume Hupin	IT-06
10h00		•	Coffee break
10h30		Louis Garrigue	IT-07
11h00		TBA	CT-06
11h30		Geneviève Dusson	IT-08
12h00		TBA	CT-07
12h30			Lunch
14h00		Lea M. Ibele	IT-09
14h30		TBA	CT-08
15h00		Hélène Bolvin	IT-10
15h30		TBA	CT-09
16h00			Coffee break
16h30		Benjamin Lenz	IT-11
17h00		${}^{\circ}\mathrm{TBA}$	CT-10
17h30		Carlos Mejutos-Zaera	IT-12
18h00		v	Poster session 2
19h00			Dinner
$\overline{Day}$ $\overline{3}$	- June 18, 2025		$\overline{Amphi}$ $\overline{VG8}$
$8h\overset{\circ}{30}$	,	Michael Urban	IT-13
9h00		TBA	CT-11
9h30		Elias Khan	IT-14
10h00			Coffee break
10h30		Pauline Colinet	IT-15
11h00		TBA	CT-12
11h30		Saad Yalouz	IT-16
12h00		Michael Herbst	IT-17
12h30			Lunch and departures

#### V. Organization of the congress and financial support

#### V. Organizing committee

Séverine BONENBERGER Thibaud ETIENNE Jérémy MORERE Julien TOULOUSE

#### V.2 Scientific committee

Lorenzo Ugo ANCARANI
Eric CANCÈS
Thomas DUGUET
Emmanuel FROMAGER
Emmanuel GINER
Pascal GRANGER
Maria HELLGREN
Pierre-François LOOS
Paola NAVA
Pina ROMANIELLO
André SEVERO PEREIRA GOMES
Julien TOULOUSE
Morgane VACHER

#### V.3 Financial support

We would like to warmly thank the following departments for their generous financial support:

- The faculty of science and technology for lending us the amphitheater
- The CPM scientific pole of the university of Lorraine
- The C2MP PhD school of the university of Lorraine
- The laboratory of theoretical physics and chemistry (CNRS and university of Lorraine)
- The CNRS, through the NBODY research network
- The European Research Council (ERC) through the "European Union's Horizon Europe" research and innovation program (Grant agreement No. 101163469)

# **DIRECTION WILLERS Campus Sciences**

07:59	07:51	07:27	07:16	07:06	06:55	06:23	05:53	Villers Campus Sciences
07:53	07:45	07:22	07:11	07:01	06:50	06:19	05:49	Villers Mairie
07:46	07:38	07:17	07:06	06:56	06:45	06:14	05:44	Provinces
07:29	07:21	07:05	06:55	06:45	06:34	06:04	05:34	Tour Thiers Gare
07:20	07:12	06:58	06:48	06:38	06:27	05:57	05:27	Place des Vosges
07:05	06:57	06:45	06:35	06:25	06:14	05:44	05:14	Essey Mouzimpré
06:59	06:51	06:40	06:30	06:20	06:09	05:39	05:09	Essey Porte Verte
06:49	06:41	06:31	06:21	06:11	06:00	05:30	05:00	Seichamps Haie Cerlin

9	21:09	20:58		08:13	08:06	Villers Campus Sciences
9	21:05	20:54		08:07	08:00	Villers Mairie
8	21:00	20:49	DE 7H À 20H	08:00	07:53	Provinces
48	20:48	20:37	11 MINUTES	07:43	07:36	Tour Thiers Gare
40	20:40	20:29	UN DEPART	07:34	07:27	Place des Vosges
28	20:28	20:17	<b>©</b>	07:19	07:12	Essey Mouzimpré
:23	20:23	20:12		07:13	07:06	Essey Porte Verte
3	20:15	20:04		07:03	06:56	Seichamps Haie Cerlin

Seichamps Haie Cerlin	21:00	21:20	21:40	22:00	22:30	23:00	23:30	23:59
Essey Porte Verte	21:08	21:28	21:48	22:08	22:38	23:07	23:37	00:06
Essey Mouzimpré	21:13	21:33	21:53	22:13	22:43	23:12	23:42	00:11
Place des Vosges	21:25	21:45	22:05	22:25	22:55	23:24	23:54	00:23
Tour Thiers Gare	21:33	21:53	22:13	22:33	23:03	23:32	00:02	00:31
Provinces	21:45	22:05	22:25	22:45	23:15	23:44	00:14	00:43
Villers Mairie	21:50	22:10	22:30	22:50	23:20	23:49	00:19	00:48
Villers Campus Sciences	21:54	22:14	22:34	22:54	23:24	23:53	00:23	00:52



#### CONSULTEZ LES INFOS EN TEMPS RÉEL TRAFIC

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# **DIRECTION SEICHAMPS Haie Cerlin**

Villago Compue Sciences	06.50	05.30	M-7/1	04.11	04.21	04.91	04./1	07.70
Villers Mairie	05:05	05:35	06:05	06:16	06:26	06:36	06:46	06:54
Provinces	05:09	05:39	06:09	06:20	06:30	06:40	06:50	06:58
Saint-Léon	05:20	05:50	06:21	06:32	06:42	06:52	07:03	07:11
Place des Vosges	05:28	05:58	06:29	06:40	06:50	07:00	07:11	07:19
Essey Mouzimpré	05:39	06:09	06:40	06:51	07:01	07:13	07:24	07:32
Essey Porte Verte	05:45	06:15	06:47	06:58	07:08	07:20	07:31	07:39
Seichamps Haie Cerlin	05:54	06:24	06:56	07:07	07:17	07:29	07:41	07:49
Villers Campus Sciences	06:56	07:03			20:04	20:15	20:30	20:45
Villers Mairie	07:01	07:08			20:09	20:20	20:35	20:50
Provinces	07:05	07:12	<b>⊙</b> •	<u></u>	20:13	20:24	20:38	20:53
Saint-Léon	07:18	07:25		N DEPART	20:25	20:36	20:50	21:05
Place des Vosges	07:26	07:35	11 MINUTES	MINUTES	20:33	20:44	20:58	21:13
Essey Mouzimpré	07:40	07:50	DE 7H À 20H	À 20H	20:45	20:56	21:10	21:25
Essey Porte Verte	07:48	07:58			20:51	21:02	21:15	21:30
Seichamps Haie Cerlin	08:00	08:10			21:00	21:11	21:24	21:39
Villers Campus Sciences	21:00	21:20	21:40	22:00	22:30	23:00	23:30	00:13
Villers Mairie	21:05	21:25	21:45	22:05	22:35	23:05	23:35	00:18
Provinces	21:08	21:28	21:48	22:08	22:38	23:08	23:38	00:21
Saint-Léon	21:20	21:40	22:00	22:20	22:50	23:20	23:50	00:33
Place des Vosges	21:28	21:48	22:08	22:28	22:58	23:28	23:58	00:41
Essey Mouzimpré	21:40	22:00	22:20	22:40	23:10	23:40	00:10	00:53



### CONTACTS

Seichamps Haie Cerlin

21:54 21:45

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# DIRECTION WANDŒUVRE Brabois - Hôpitaux

Essey Mouzimpré	00:40	04:15	04:30	04:45	05:00	05:10	05:20
Mairie de Saint-Max	00:09	04:24	04:39	04:54	05:09	05:19	05:29
Point Central	04:17	04:32	04:47	05:02	05:17	05:27	05:37
Gare - Saint-Léon	04:22	04:37	04:52	05:07	05:22	05:32	05:42
Jean Jaurès	04:25	04:40	04:55	05:10	05:25	05:35	05:45
Vélodrome - Callot	04:31	04:46	05:01	05:16	05:31	05:41	05:51
Vandœuvre Brabois - Hôpitaux	04:41	04:56	05:11	05:26	05:41	05:51	06:01

UN DÉPART TOUTES LES 7 MINUTES DE 5H30 À 19H
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Var Vétu Jea Gar Poin Mai

Vandœuvre Brabois - Hôpitaux	Vélodrome - Callot	Jean Jaurès	Gare - Saint-Léon	Point Central	Mairie de Saint-Max	Essey Mouzimpré
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00:46	00:26	00:11	23:56	23:41	23:26	Vélodrome - Callot
00:40	00:20	00:05	23:50	23:35	23:20	Jean Jaurès
00:37	00:17	00:02	23:47	23:32	23:17	Gare - Saint-Léon
00:31	00:11	23:56	23:41	23:26	23:11	Point Central
00:23	00:03	23:48	23:33	23:18	23:03	Mairie de Saint-Max
00:15	23:55	23:40	23:25	23:10	22:55	Essey Mouzimpré

# DIRECTION ESSEY Mouzimpré

	06:59	06:47	06:37	06:27	06:12	05:57	05:42	05:27	sey Mouzimpré
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UN DEPART	06:35	06:24	06:14	06:04	05:49	05:34	05:19	05:04	an Jaurès
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	06:20	06:10	06:00	05:50	05:35	05:20	05:05	04:50	ındœuvre Brabois - Hôpitaux

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23:39	23:31	23:23	23:19	23:15	23:08	73:00
23:54	23:46	23:38	23:34	23:30	23:23	23:10
00:09	00:01	23:53	23:49	23:45	23:38	23:30
00:24	00:16	00:08	00:04	00:00	23:53	23:45
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les fiches horaires affichées





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## CONTACTS

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