

BSM@50

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CREDIT: GILLES GERBIER

**BSM
in Particle Physics
and
Cosmology:
50 years later**

**2024
QUY NHON**

SM has (just) turned 60+*

- 1961: S. Glashow, $SU(2) \times U(1)$ weak mixing
- 1963: N. Cabibbo, quark mixing
- 1964: R. Brout, F. Englert, P. Higgs, Higgs mechanism
- 1967-68: S. Weinberg, A. Salam, spontaneous symmetry breaking
- 1971: G. 't Hooft and M. Veltman, renormalisation of weak interaction
- 1973: [Gargamelle](#) experiment, discovery of neutral weak currents
- 1973: D. Gross, D. Politzer and F. Wilczek, Quantum chromodynamics
- 1983: [UA1](#) and [UA2](#) experiments, discovery of W and Z bosons

* or 50 or 40 (depending if you are a theorist or an experimentalist)

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... the rest is living history that we are all enjoying.

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BSM is turning 50

Not a new story... many (failed?) attempts

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- GUT (Pati-Salam '73, Georgi-Glashow '74)
- SUSY ('71) / MSSM ('77-'81)
- Technicolor ('79)
- Large extra dimension, aka ADD ('98)
- Warped extra dimension, aka RS ('99)
- Composite Higgs ('84-'03)
- Little Higgs ('01)
- Higgsless ('03)
- Relaxion ('15)
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(BSM can only be an ephemeral concept!)

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History shows there is no reason to lose hope.

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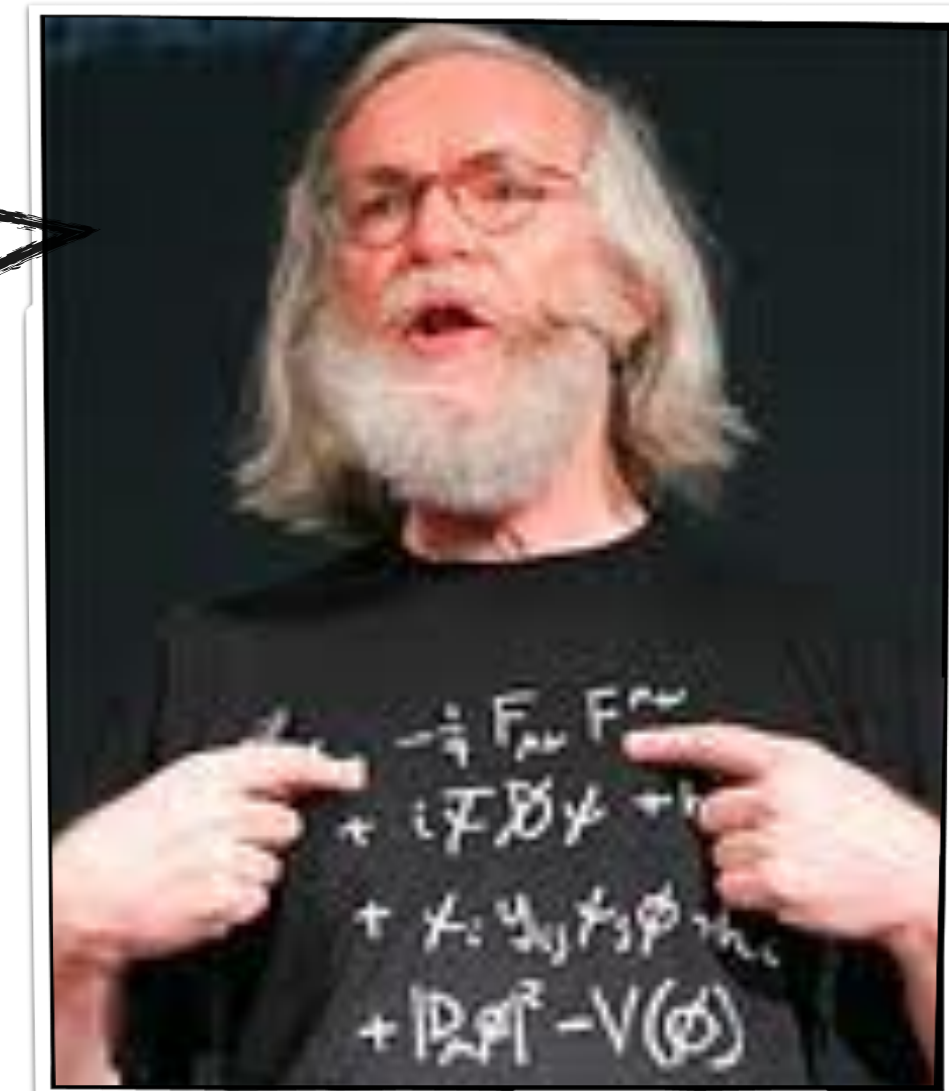
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I'll soon be the King of England

I'll soon discover SUSY



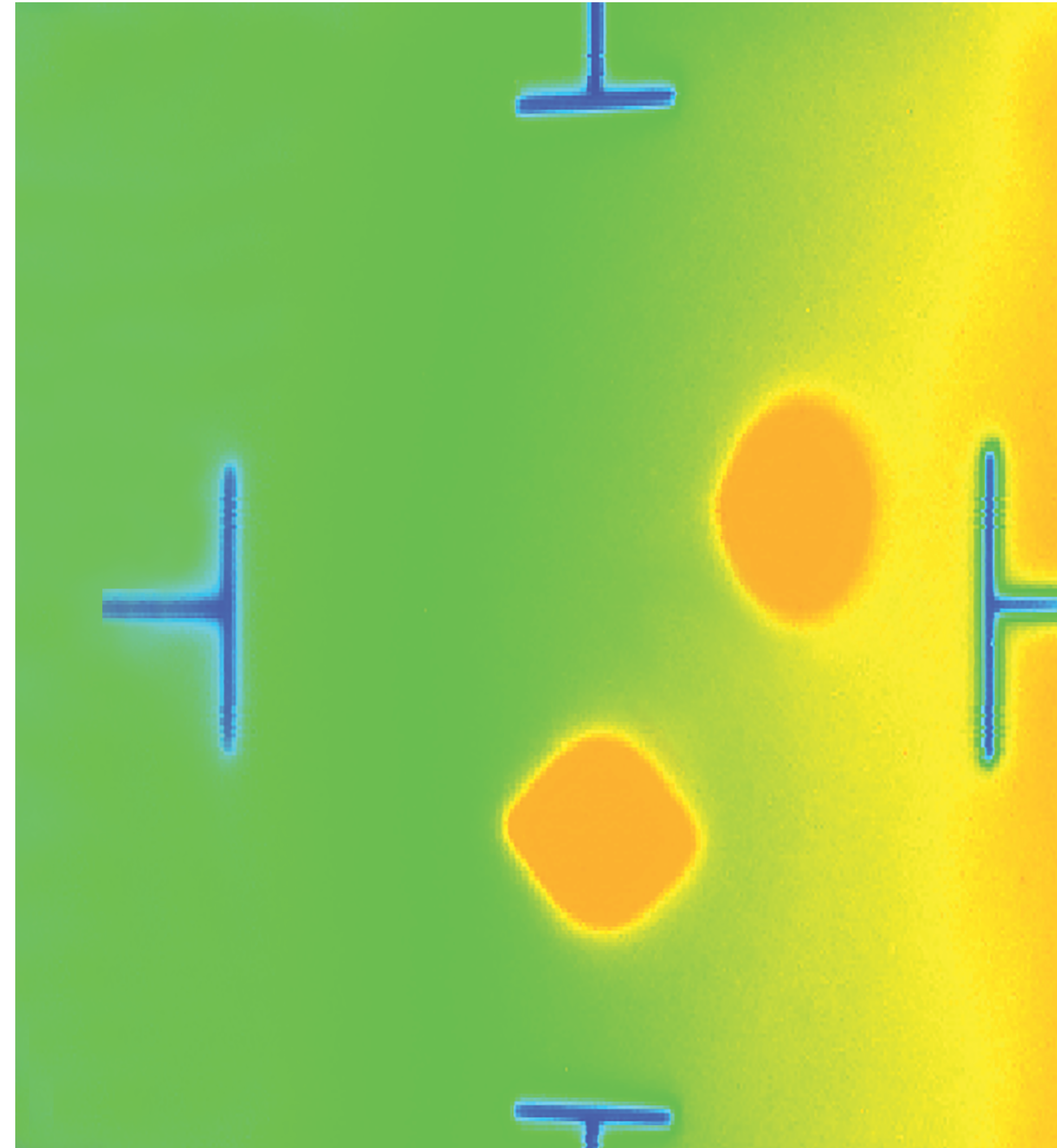
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LHC is turning 15

Sept. 10, 2008

CERN Courier 2018



First beam circulated in LHC tunnel

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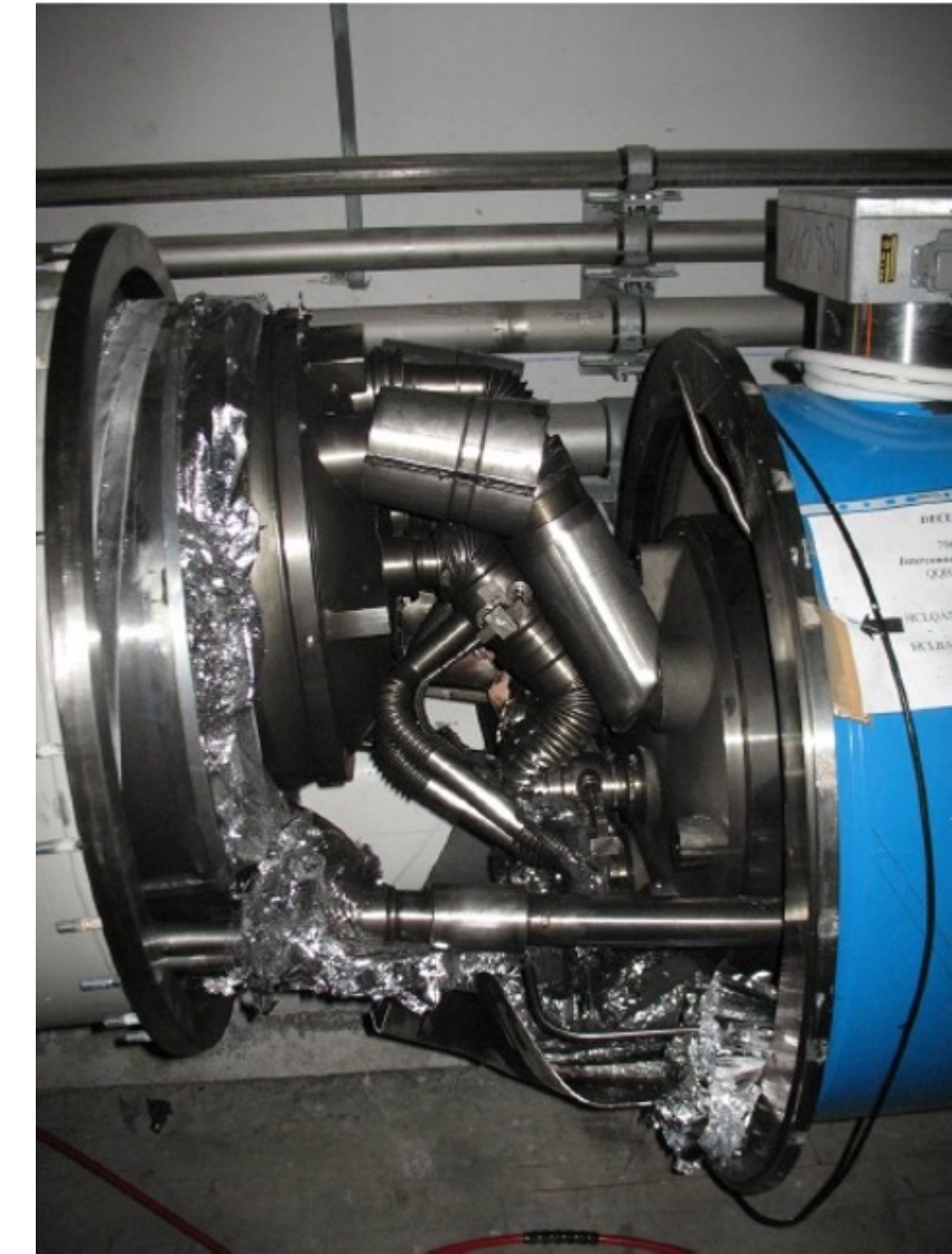


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Sept. 19, 2008



LHC implosion/explosion
b/c one inter-magnet connector (out of 100,000)
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S. Myers @ HiggsHunting 2023

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thanks to Lehman Brothers bankruptcy (640B\$US) on Sept. 15, 2008.

S. Myers @ HiggsHunting 2023

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Tentative Timetable BSM @ 50 Quy Nhon, ICISE						
	Monday 07/01	Monday 08/01	Tuesday 09/01	Wednesday 10/01	Thursday 11/01	Friday 12/1
8:30-9:00		official opening and group photo	Hubisz	Pomarol	An	Youn
9:00-9:30			Gu	Durieux	Ko	Pradler
9:30-10:00		Randall	Gupta	Shen	S.J. Lee	H.M. Lee
10:00-10:30		coffee breaks				
10:30-11:00		Neubert	Li	Gersdorff	T.T. Yu	Kobakhidze
11:00-11:30		Schmidt	11:00-11:20: Mahapatra 11:20-11:40: Aoki 11:40-12:00: Tran	S. Hong	Xue	Nagata
11:30-12:00		Vempati		Craig	Evans	B. Yu
12:00-13:30		lunch breaks				
13:30-14:00		Contino	Shirai	excursion	Villadoro	Terada
14:00-14:30		Kitano	Shirman		Dunsky	Wang
14:30-15:00		Perelstein	Terning		Cox	Son
15:00-15:30		coffee breaks			coffee break	coffee break
15:30-16:00		Kribs	Ruhdorfer		Roy	Schmaltz
16:00-16:30		Senatore	Telem		D.K. Hong	Rajendran
16:30-18:30	From 17:00 @ Seagull conference registration	discussion/free time			discussion/free time	summary & concluding discussion
evening	Welcome cocktail dinner @ Seagull	dinner @ ICISE	dinner @ Quy Nhon (Seafood restaurant)	dinner @ Quy Nhon (Vietnamese cuisine)	banquet @ ICISE	farewell dinner @ ICISE

Thanks for your participation!
(about half of you is in Vietnam for the first time)

International Center of Interdisciplinary Science Education (ICISE)



ICISE



Construction started in 2012



Inauguration in August 2013

Rencontres du Vietnam

August 11 – 17, 2013 • ICISE • Quy Nhon, Vietnam

WINDOWS ON THE UNIVERSE

Inaugural Conference

INTERNATIONAL CENTER FOR INTERDISCIPLINARY SCIENCE EDUCATION

2013
QUY NHON

[OVERVIEW](#)

[PROGRAM](#)

[PRACTICAL](#)

[PROCEEDINGS](#)

[PARTICIPANTS](#)

[ABSTRACTS](#)

[TOURS](#)

[ICISE](#)



7 Nobel prize winners in the room

ICISE

Rencontres du Vietnam

- Rencontres de Moriond started in 1966 with 3 senior physicists and 20 young ones and became the major HEP conference that you all know and love (first in Méribel, then in Les Arcs and now in La Thuile)
- Rencontres de Blois started in 1989
- Rencontres du Vietnam started in 1993 (first in Hanoi, then in Quy Nhon)





RENCONTRES
DE BLOIS





RENCONTRES
DU VIETNAM

THEORY MEETS EXPERIMENTS: PARTICLE PHYSICS AND COSMOLOGY
LÝ THUYẾT GẶP THÍ NGHIỆM: VẬT LÝ THỰC NGHIỆM VÀ VẬT LÝ THỜI ĐẠI VÀ VẬT LÝ THỰC NGHIỆM

THREE NEUTRINOS AND BEYOND
BA THỂ HỆ NEUTRINO VÀ HƠN THỂ NỮA

August 4 - 10, 2019, Quy Nhon, Vietnam

icisc

ICISE

ICISE

core missions

- Conference centre to promote scientific exchanges between Vietnamese researchers and their colleagues abroad.
- A research institute with neutrino group already on site (Son Cao part of T2K, annual school on neutrinos...)
- Science initiation centre:
ExploraScience



List of 2024 events @ ICISE

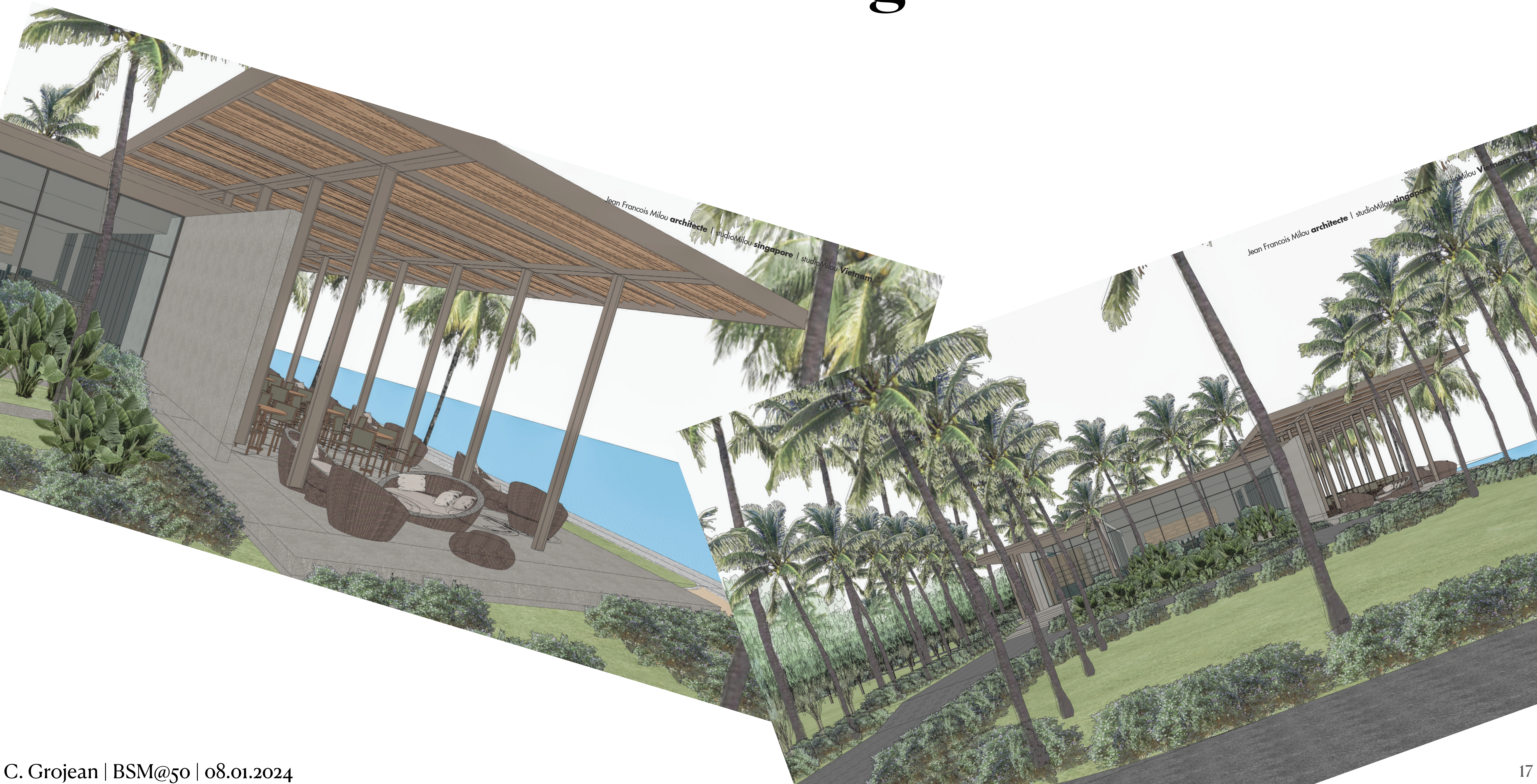
	Time	Conference
1	January 7-13, 2024	BSM in particle physics and cosmology: 50 years later
2	February 21-23, 2024	Digital Transaction Platform V International Conference
3	March 3-9, 2024	3rd Hardware camp for fast and low-light detection
4	March 4-7, 2024	The 4th International Conference on Environmental Pollution, Restoration, and Management (4thICEPORM)
5	April 11 - 12, 2024	Vietnam International Conference: Advances in Plant Biology- from genome editing to sustainable development.
6	April 15-17, 2024	The First Vietnam International Symposium on Medicinal Plants and Natural Products (MPNP2024)
7	April 22-26, 2024	24th IEEE Real Time Conference
8	June 10-14, 2024	Soft Matter, Fluids, and Interfaces
9	July 7 - 13, 2024	28th International Symposium on Particles, Strings and Cosmology (PASCOS)
10	July 14-20, 2024	Vietnam School of Astrophysics (VSOA8)
11	July 15-26, 2024	8th Vietnam School on Neutrinos (VSON8)
12	July 15-26, 2024	30th Vietnam School of Physics (VSOP30)
13	July 21 - August 3, 2024	SAGI Summer School 2024: Astronomical Techniques (3S24)
14	July 31 - August 2, 2024	Le Quy Don Open Model United Nation 2024
15	August 4-10, 2024	The Axion Quest
16	August 6-8, 2024	The Circulation of Popular Religion: The Case of Xiantiandao
17	August 11 - 14, 2024	The 2nd International Conference on Microbiology and One Health
18	August 19-22, 2024	The 11th Vietnam Summer School of Science - VSSS'11
19	August 23-26, 2024	First International Workshop on Materials Informatics (VietMI-2024)
20	September, 2024	Science for Peace Parliamentary meeting (Inter-Parliamentary Union - IPU)
21	September 8-13, 2024	Vietnam School of Earth Observation (VSEO4)
22	September 16 - 19, 2024	8th IAPSIT International Sugar Conference (ISC2024) & Sugarcon 2024
23	September, 2024	Rencontres du Vietnam: The second International Symposium of Nano Life Science: Nano Biotechnology, Biosensor, Computation (NanoBioCoM2024)
24	October 2-4, 2024	Rencontres de Quy Nhon VII: International Biology Conference
25	November 25 - 29, 2024	4th Vietnam Conference on Earth and Environmental Science (IVCEES2024)
26	December, 2024	3rd Vietnam School of Biology (VSOB-3)
27	December, 2024	The Third Rencontres de Quy Nhon: International Workshop on Molecular Diagnostics in Microbiology and Diseases (MDMD-3)
28	December, 2024	Vietnam Symposium of Development (VSOD-2)

You are encouraged to propose a workshop/school...

All of this wouldn't be possible without the vision, enthusiasm and dedication of Van and Kim



Work in Progress



Enjoy Your Stay — Enjoy ICISE

Message from Van on Friday

“We have created new promenades:

- the one on the other side of the bridge, with memorial posts for the Nobel Prize winners who came to ICISE. It's a great place to go for a walk.
- the one around the lakes. Invite the participants to take a walk there, it's lovely and relaxing.”

