

Horizon 2020 Twinning proposal:

**Strengthening the capacity of University of Split and Croatia in
the field of high energy physics and engineering**

SPLITHEP

Lessons learned

Ivica Puljak

APPEC: Astroparticle in Horizon 2020, Zagreb, 29-30 September 2015

Call for Twinning

Call for Twinning

H2020-TWINN-2015

Opening Date	02-07-2014	Deadline Date	07-05-2015 17:00:00 (Brussels local time)
Publication date	02-07-2014	Total Call Budget	€65,270,000
Programme	Horizon 2020	Main Pillar	Spreading excellence and widening participation
Status	Open	OJ reference	OJ C361 of 11 December 2013

Topic: Twinning

H2020-TWINN-2015

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-twinn-2015.html>

Twinning – Specific challenge

- ▶ The specific challenge is **to address networking gaps and deficiencies between the research institutions of the low performing Member States and regions and internationally-leading counterparts at EU level.**
 - Driven by the quest for excellence, research intensive institutions tend to collaborate increasingly in closed groups, producing a crowding-out effect for a large number of promising institutions.
 - This is the challenge that a specific Twinning action will try to address.

Twinning – Activities and budget

- ▶ Supported measures:
 - short term staff exchanges;
 - expert visits and short-term on-site or virtual training;
 - workshops;
 - conference attendance;
 - organisation of joint summer school type activities;
 - dissemination and outreach activities.
- ▶ Twinning activities will provide **no support to infrastructure and equipment and no support for hiring new permanent research staff.**
- ▶ Requesting a contribution from the EU of **EUR 1 million**

Twinning – Expected impact

- ▶ There will be a measurable and significant improvement
 - **in the overall scientific and innovation capacity of the initiating institution** in a particular field of research
 - through linking with research intensive counterpart institutions in other Member States
 - and thereby expect **positive impacts on the overall research and innovation potential of the Member State or the region** the initiating institution is located in.
 - Such improvement could be measured through an increase of peer-reviewed publications, increased impact factors in terms of citations etc.

Main goal of SPLITHEP proposal

- ▶ ... to significantly strengthen High Energy Physics (HEP) research and engineering both locally at the University of Split – FESB in Croatia
 - as well as in the entire Croatia and in the region
- ▶ This will be achieved by twinning with high research profile institutions:
 - CERN in Geneva, Switzerland
 - Ecole Polytechnique – Laboratoire Leprince Ringuet in Palaiseau, France
 - Max Planck Institute for Physics in Munich, Germany
- ▶ This project will significantly increase the S&T capacity of FESB,
 - and will contribute considerably towards fulfilling the strategic goal of the University of Split,
 - which consists of raising the level of scientific excellence and innovation capacity.



University of Split

FESB 1960-2015

Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture



1980

Founded in 1960



Today



Employees

150
Teaching staff

121
PhD

33
Laboratory
technicians and
Technical
assistants

64
Other
employees

247
Full-time
employees

36
Full
professors

21
Associate
professors

34
Assistant
professors

7
Senior
lecturers and
lectures

29
Postdocs

23
PhD
students

University study programmes

YEAR 1. 2. 3.

UNDERGRADUATE STUDY

ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY	CONTROL AND SYSTEMS
	ELECTRONICS AND COMPUTER ENGINEERING
	ELECTRICAL ENGINEERING
	COMMUNICATION AND INFORMATION TECHNOLOGY
180	
COMPUTING	100
MECHANICAL ENGINEERING	100
INDUSTRIAL ENGINEERING	50
NAVAL ARCHITECTURE	30

4. 5.

GRADUATE STUDY

CONTROL AND SYSTEMS	
ELECTRONICS AND COMPUTER ENGINEERING	ELECTRONICS
	COMPUTER ENGINEERING
ELECTRICAL ENGINEERING	AUTOMATION AND DRIVES
	POWER SYSTEMS
COMMUNICATION AND INFORMATION TECHNOLOGY	TELECOMM. AND COMP. SC.
	WIRELESS COMMUNICATION
COMPUTING	
STRUCTURES AND ENERGY TECHNOLOGY	
COMPUTER AIDED DESIGN AND ENGINEERING	
PRODUCTION MECHANICAL ENGINEERING	
INDUSTRIAL ENGINEERING	PRODUCTION MANAGEMENT
	PRODUCT LIFECYCLE MANAGEMENT

University study programmes

YEAR

6.

7.

8.

POSTGRADUATE STUDY		GRADUATE STUDY	
ELECTRICAL ENGINEERING AND INFORMATION TECHNOLOGY	CONTROL AND SYSTEMS		
	ELECTRONICS AND COMPUTER ENGINEERING	ELECTRONICS	
		COMPUTER ENGINEERING	
	ELECTRICAL ENGINEERING	AUTOMATION AND DRIVES	
		POWER SYSTEMS	
	COMMUNICATION AND INFORMATION TECHNOLOGY	TELECOMM. AND COMP. SC.	
		WIRELESS COMMUNICATION	
COMPUTING			
MECHANICAL ENGINEERING	STRUCTURES AND ENERGY TECHNOLOGY		
	COMPUTER AIDED DESIGN AND ENGINEERING		
	PRODUCTION MECHANICAL ENGINEERING		
	INDUSTRIAL ENGINEERING	PRODUCTION MANAGEMENT	
		PRODUCT LIFECYCLE MANAGEMENT	

Research



ICT

Research



Radiocommunications

Research

Biomechanics

Research

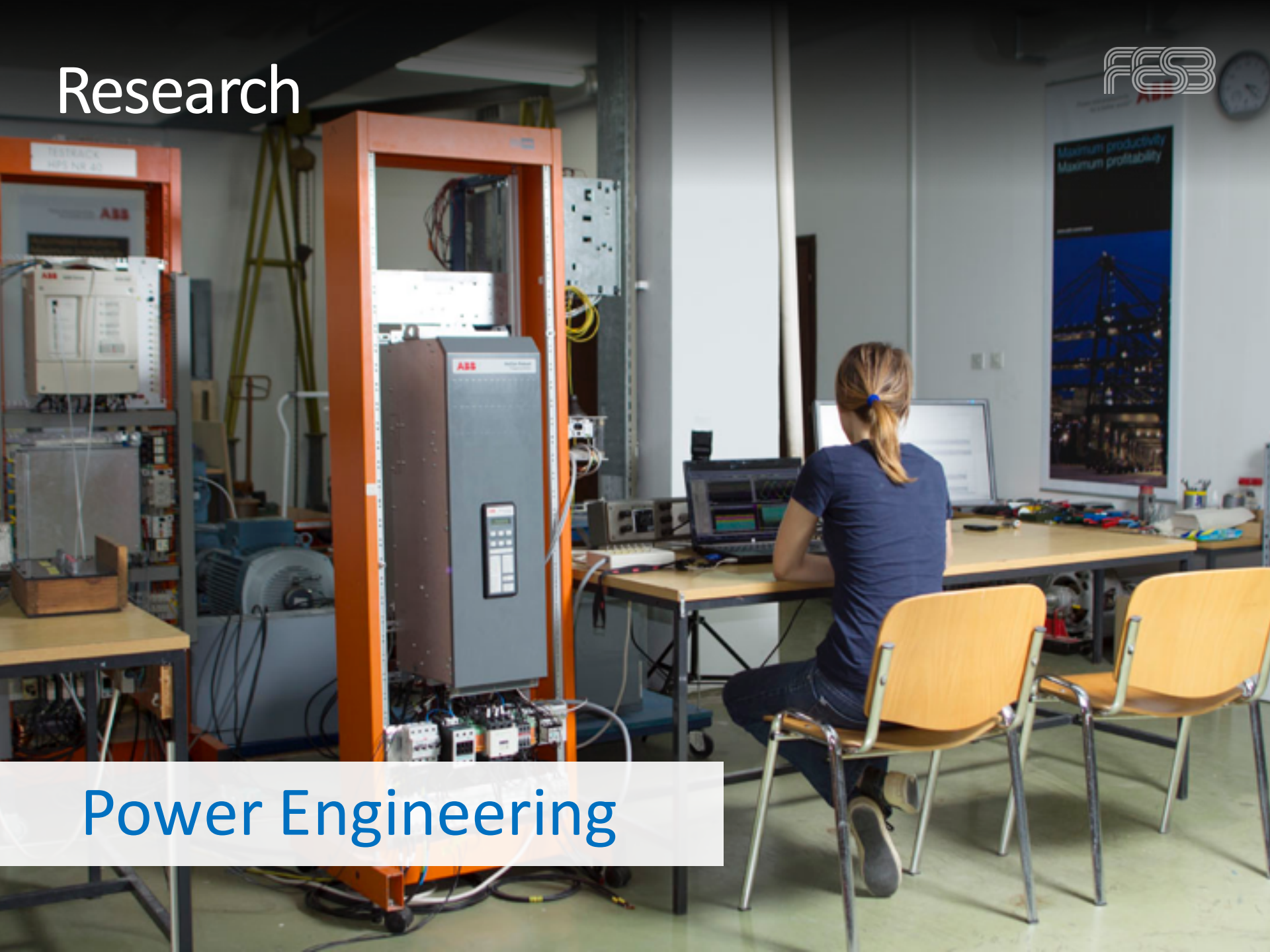


Renewable Energy Sources

Research



Power Engineering



Research

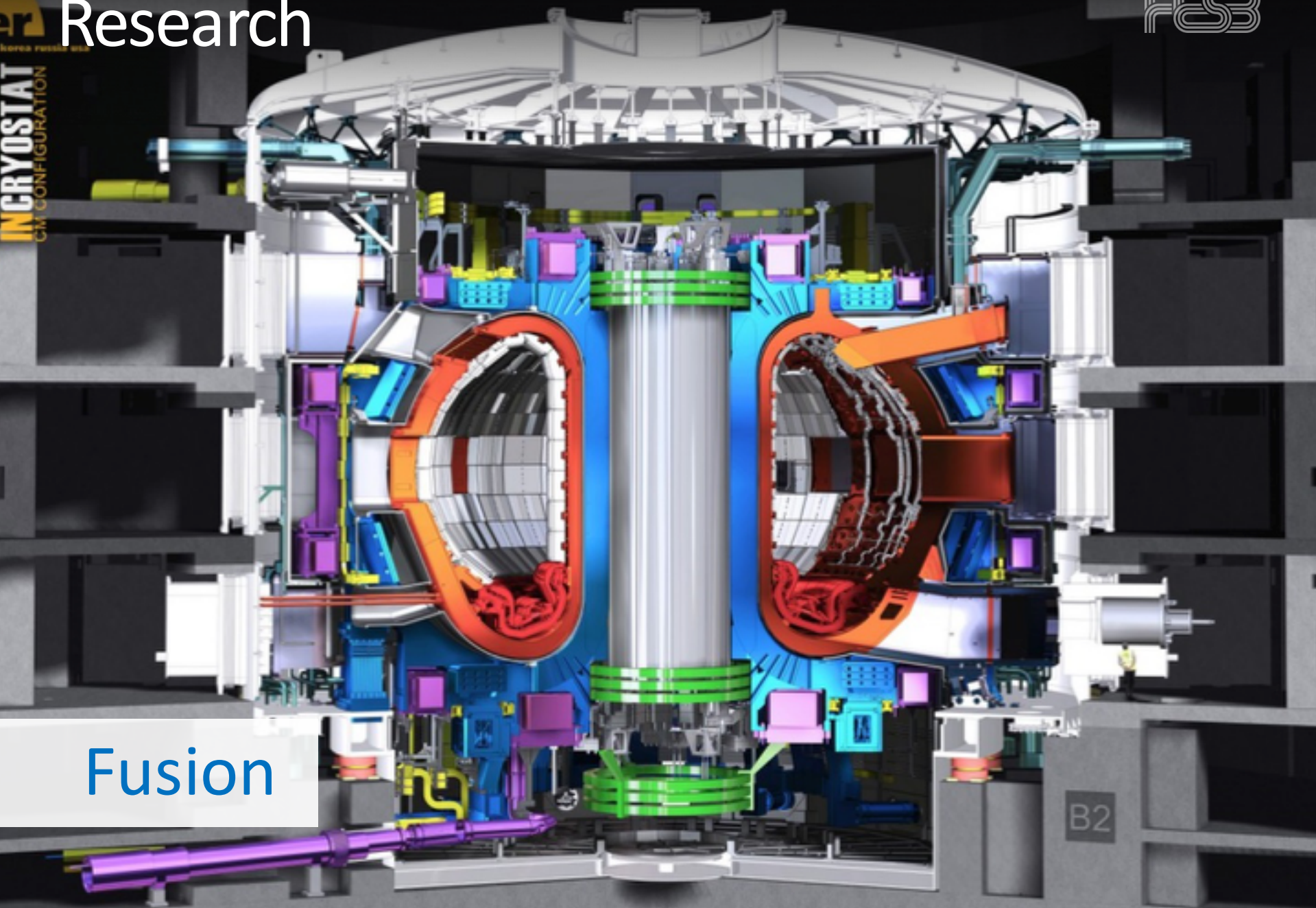
The background image shows a person in a white shirt sitting at a desk in a dimly lit room, working on a computer. The computer monitor displays a technical drawing or simulation. In the foreground, a large, complex mechanical part is visible, featuring a woven mesh structure. A semi-transparent white box containing the text 'Mechanical Engineering' is overlaid on the bottom left of the image.

Mechanical Engineering



Research

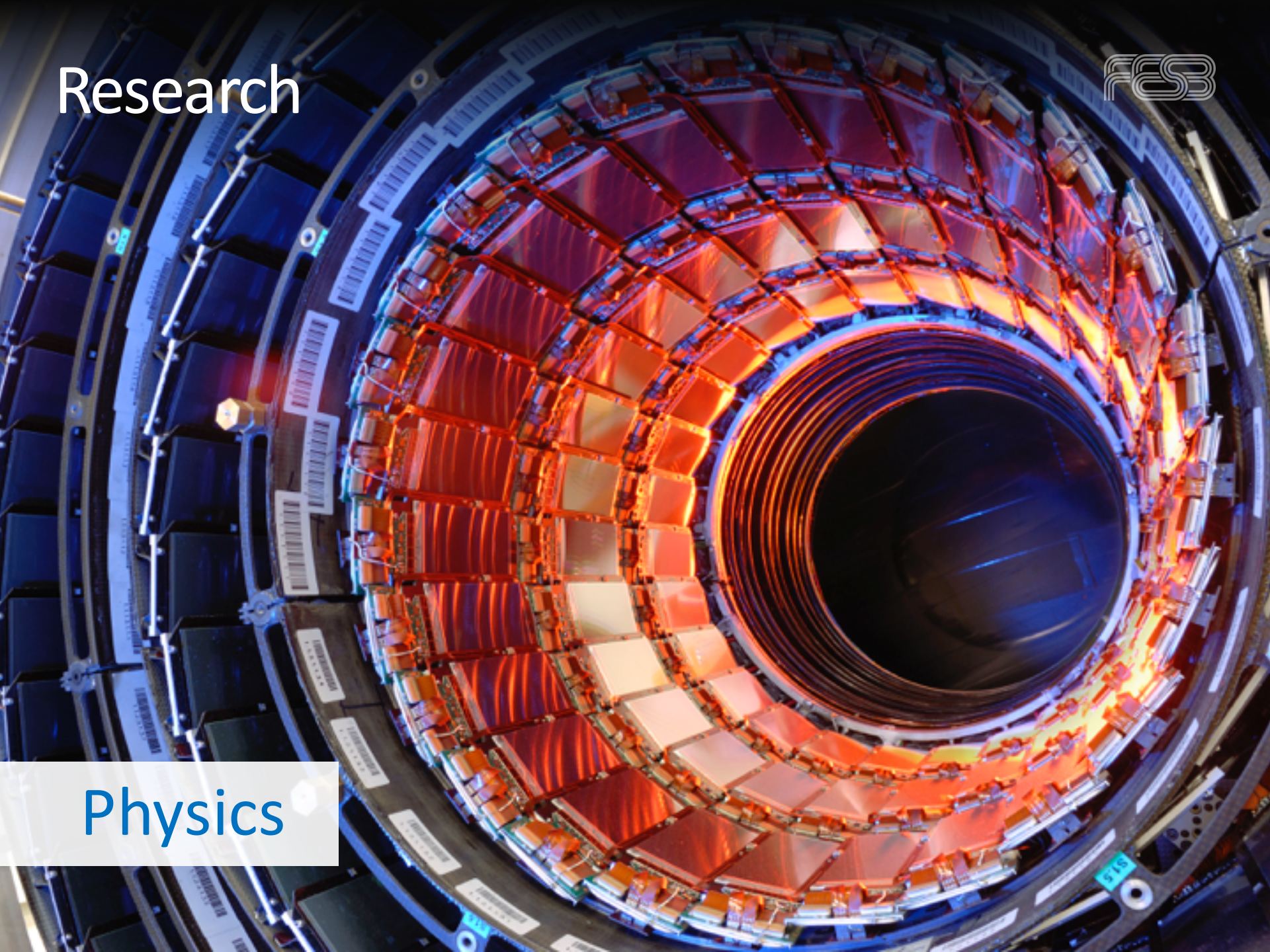
Fusion



Research



Physics



Groups at FESB in Twinning proposal

► High energy physics

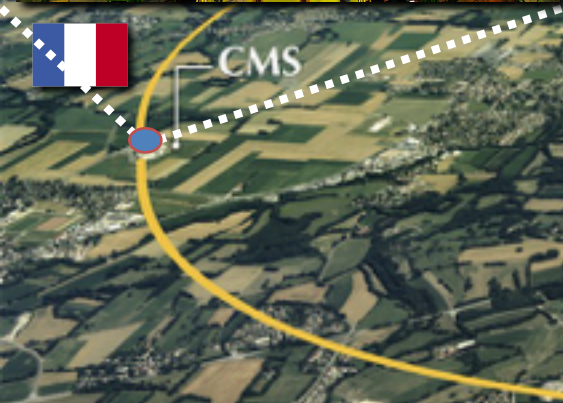
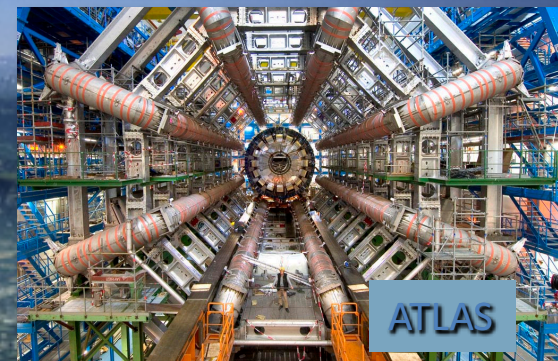
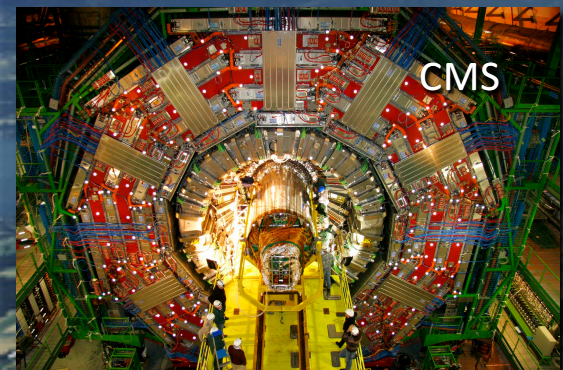
Ivica Puljak	Full professor	Project leader
Nikola Godinović	Associate professor	WP leader
Ilja Doršner	Associate professor	WP leader
Damir Lelas	Assistant professor	WP leader
Pedro Ribeiro	Postdoc	
Marko Kovač	PhD student	
Toni Ščulac	PhD student	
Dunja Polić	Lecturer	
Bojan Lončar	Technician	
Stipe Mađor Božinović	Technician	

► Digital electronics

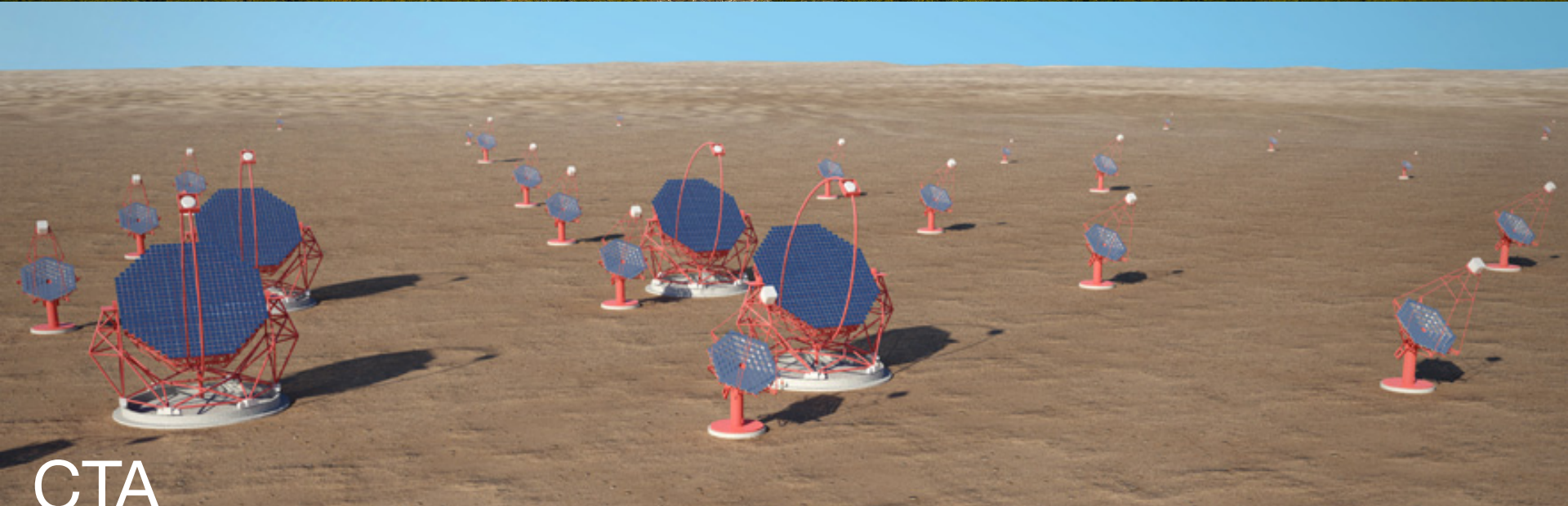
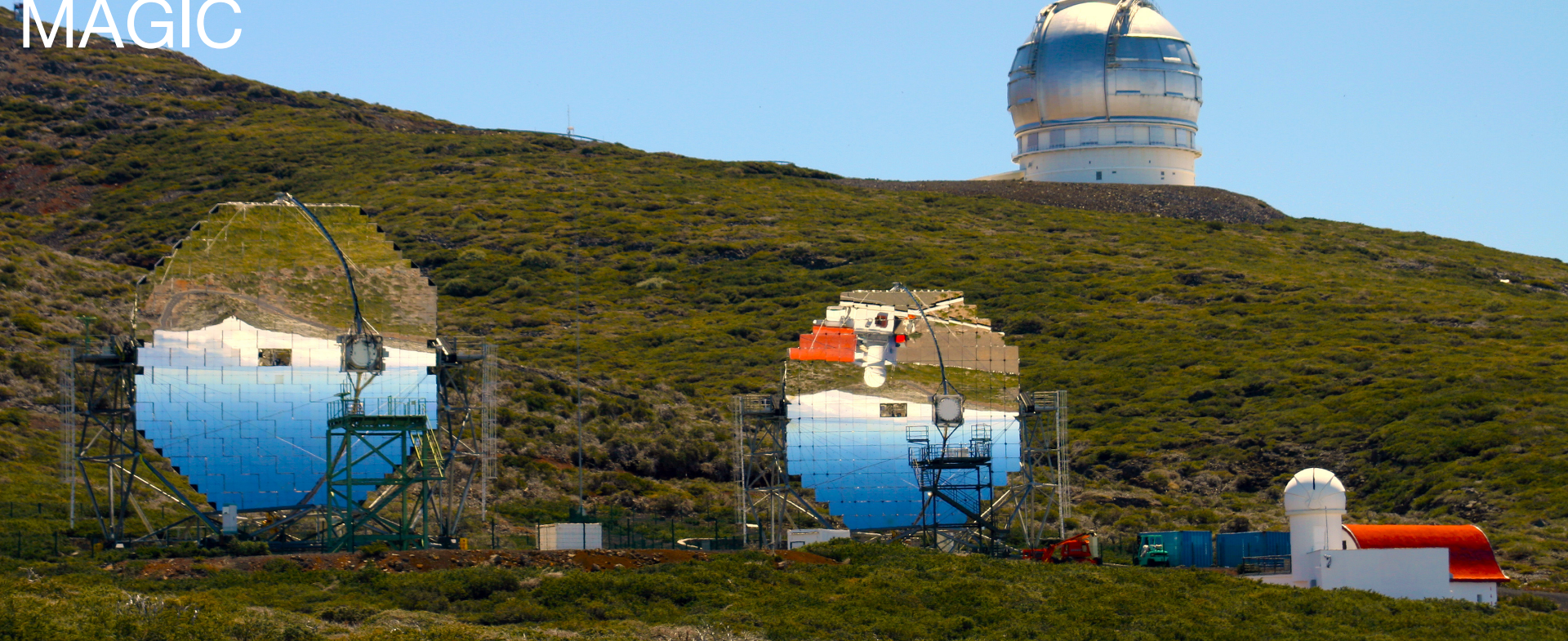
Julije Ožegović	Full professor	Group leader
Josip Musić	Assistant professor	
Ante Kristić	Postdoc	
Vesna Pekić	Postdoc	
Ivan Marasović	Postdoc	
Duje Čoko	Postdoc	
Marina Prvan	PhD student	

► Parallel computing and big data analysis

Sven Gotovac	Full professor	Group leader
Vladan Papić	Full professor	
Mirjana Bonković	Full professor	
Tamara Grujić	Assistant professor	
Eugen Mudnić	Assistant professor	
Tea Marasović	Postdoc	
Ana Kuzmanić	Postdoc	
Željko Kerošević	Technician	
Žarko Rnjak	Technician	



MAGIC



CTA

9/29/15

H2020 Twinning: Lessons learned

23

The HGCAL project in a snapshot

HGCAL = High Granularity Calorimeter



China: IHEP; Croatia: Split; CERN; France: LLR; Germany (Hamburg); Greece: Athens, Democritos;
India: SINP-Calcutta (TIFR); Taiwan: NTU; UK (Imperial); US: Brown, CMU, FIT, FNAL, Minnesota, MIT, UCSB

The CMS Phase II Upgrades

Trigger / HLT / DAQ

- Track information at L1 trigger
- L1-trigger – 12.5 μs latency / 750 kHz output
- HLT output 7.5 kHz

Muons

- Replace DT & CSC FE+BE electronics
- Complete RPC coverage in $1.5 < \eta < 2.4$ (new GEM/RPC technology)
- Muon-tagging in $2.4 < \eta < 3$

New Calorimeter EndCaps

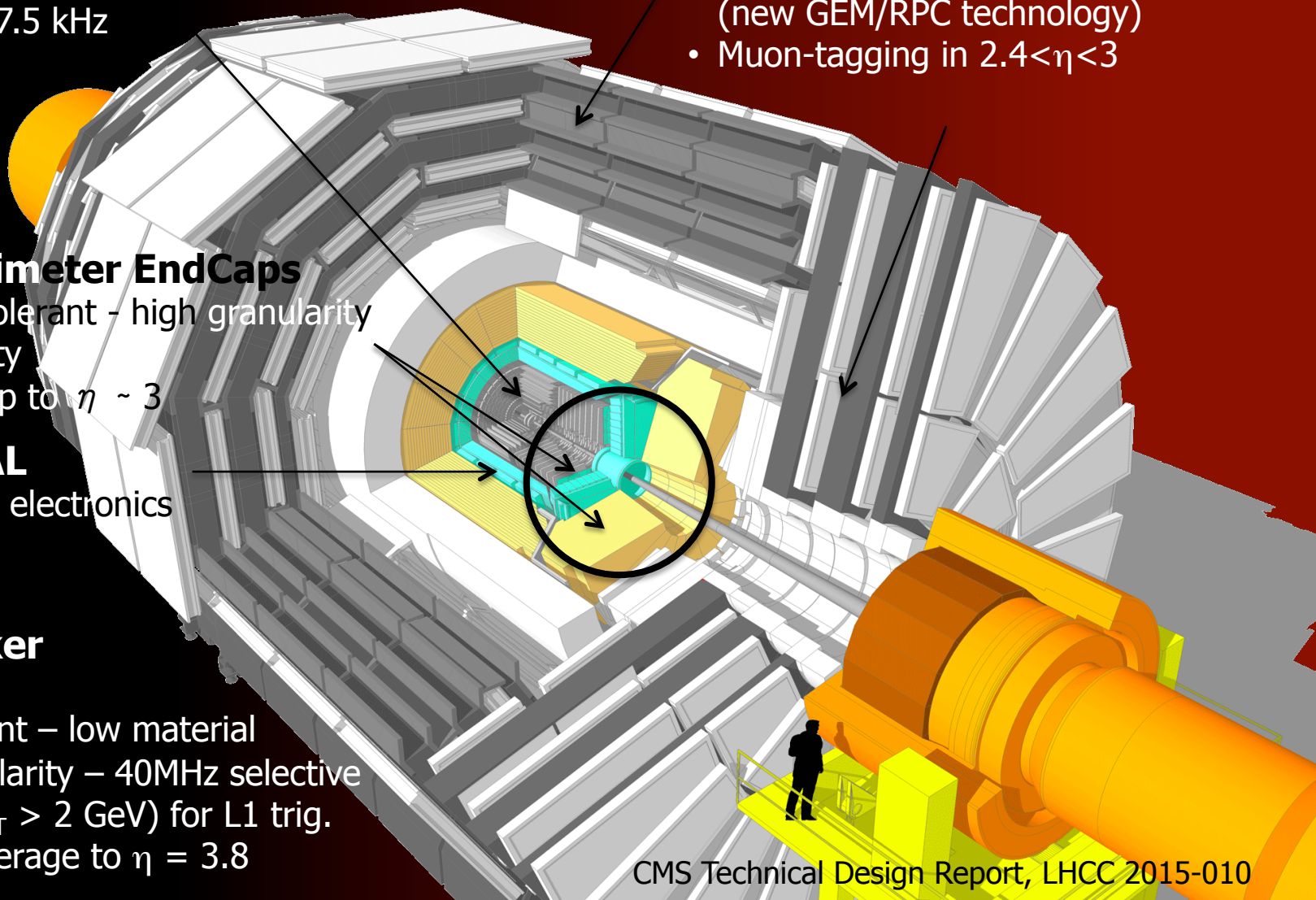
- Radiation tolerant - high granularity
- 5D capability
- Coverage up to $\eta \sim 3$

Barrel ECAL

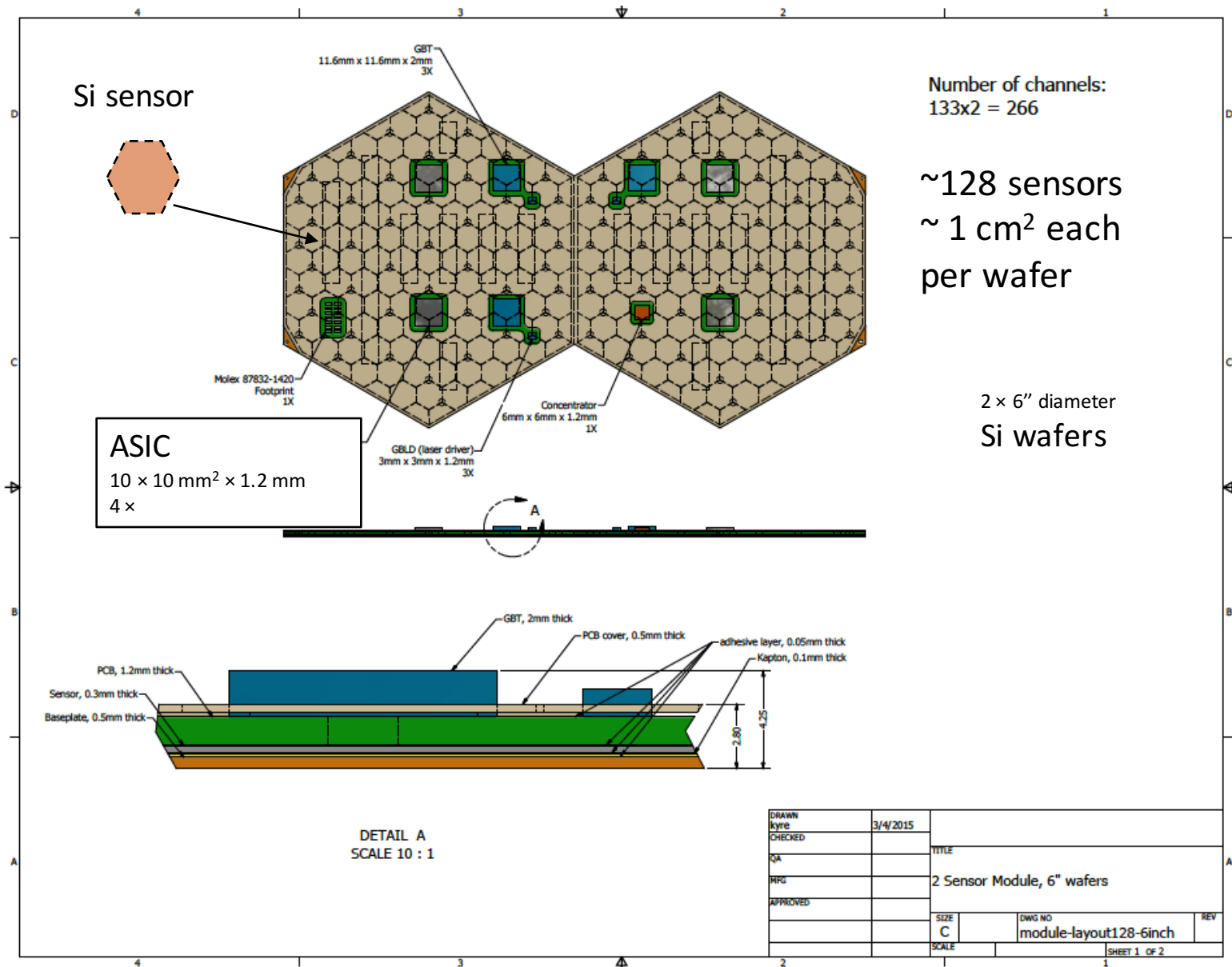
- Replace FE electronics

New Tracker

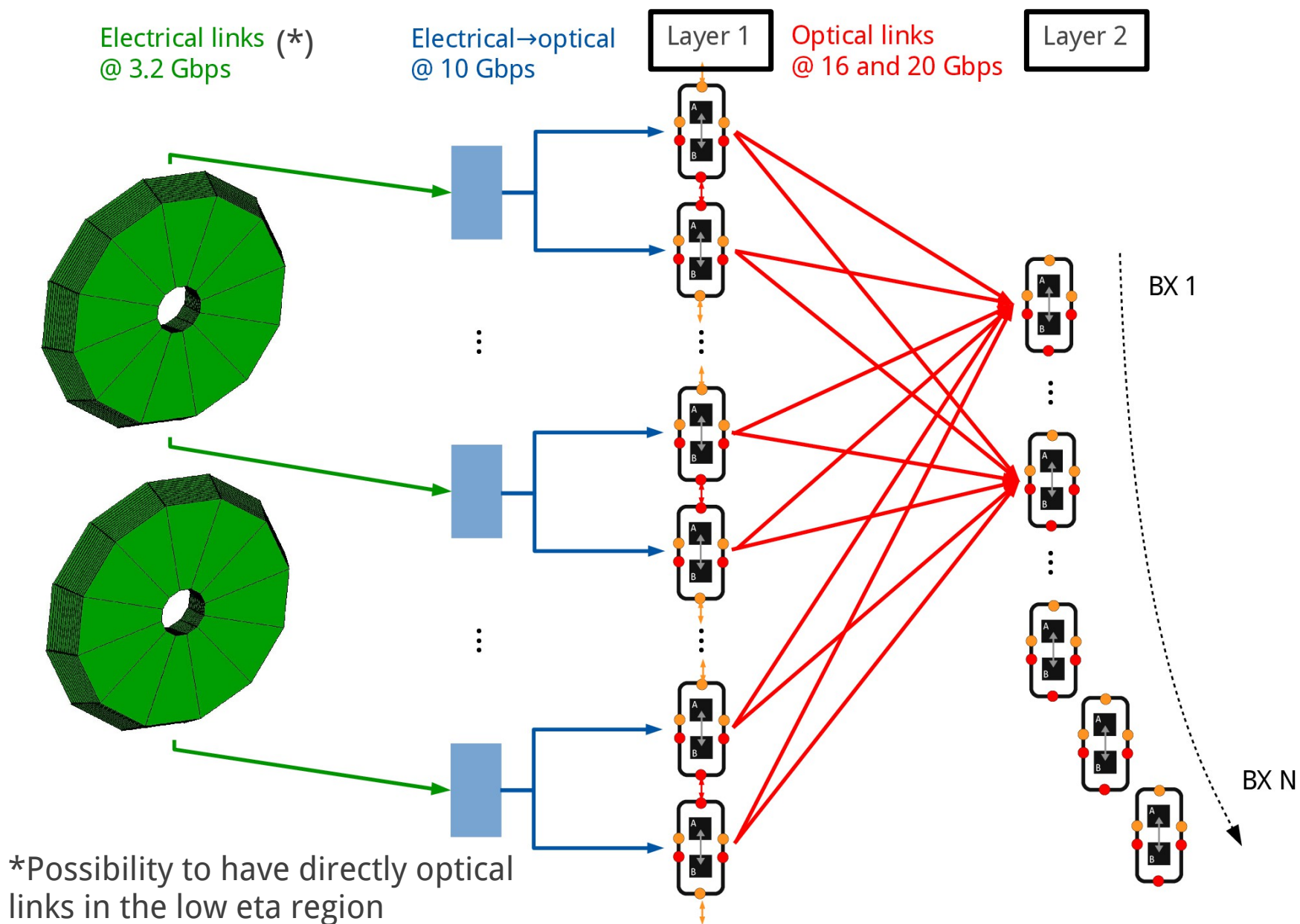
- Rad. tolerant – low material
- High granularity – 40MHz selective readout ($P_T > 2 \text{ GeV}$) for L1 trig.
- Extend coverage to $\eta = 3.8$



The HGCAL Readout Modules



A Global View



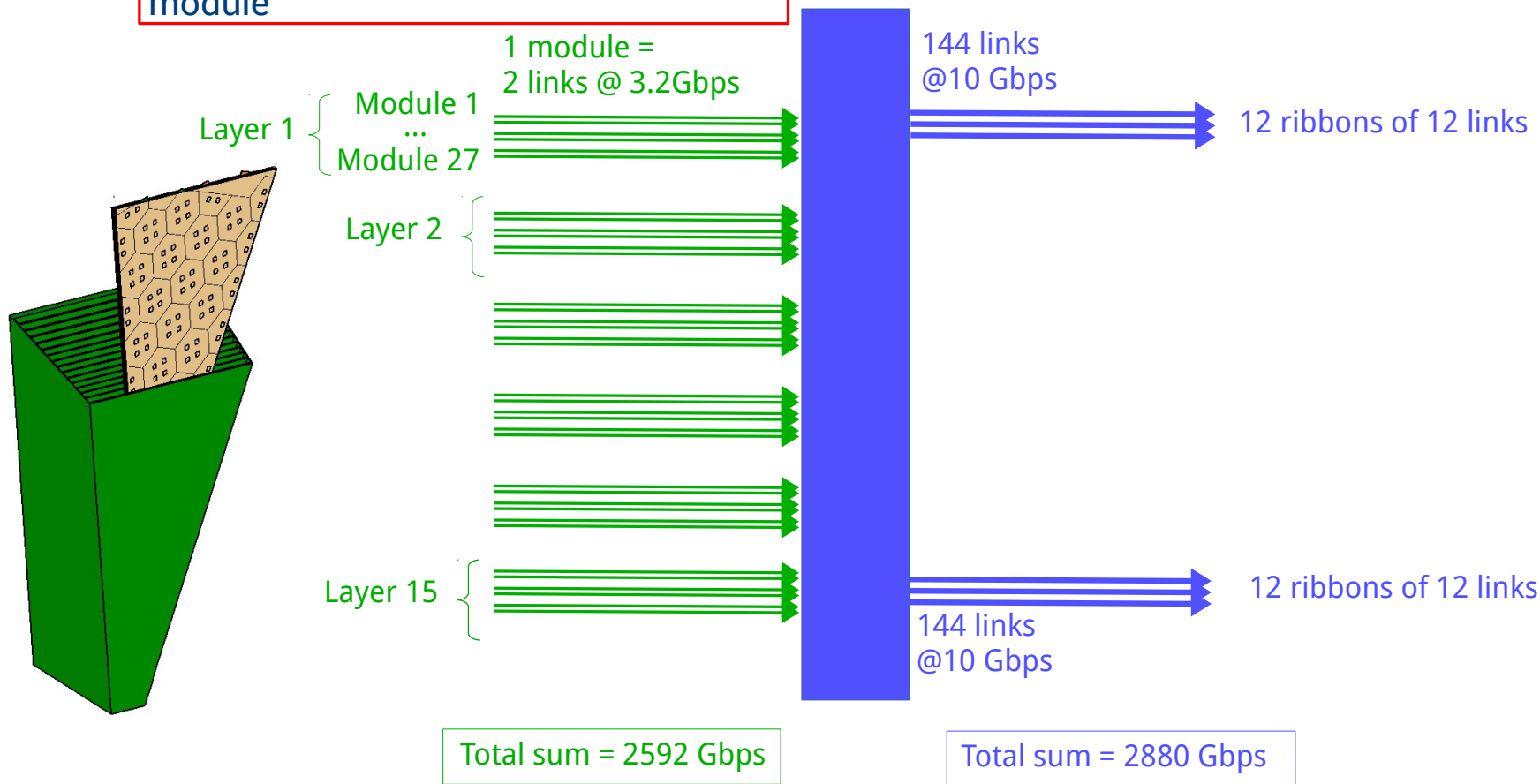
Electrical-Optical Conversions

■ Trigger output of one EE petal

- ↳ 15 sensor layers among 30
- ↳ 27 sensor modules per layer
- ↳ 2 electrical links @ 3.2 Gbps per sensor module

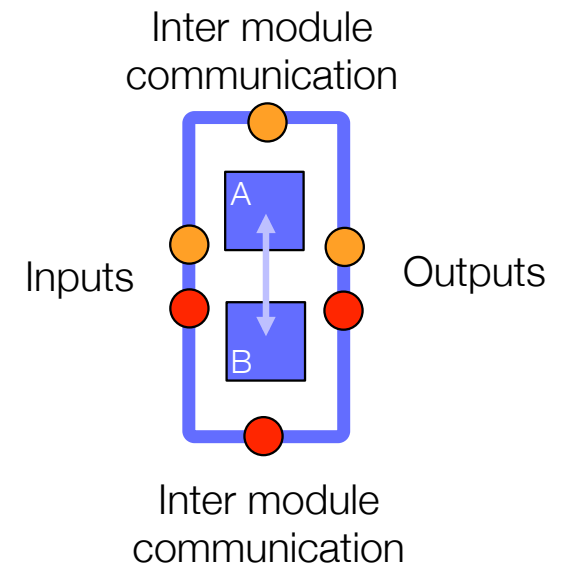
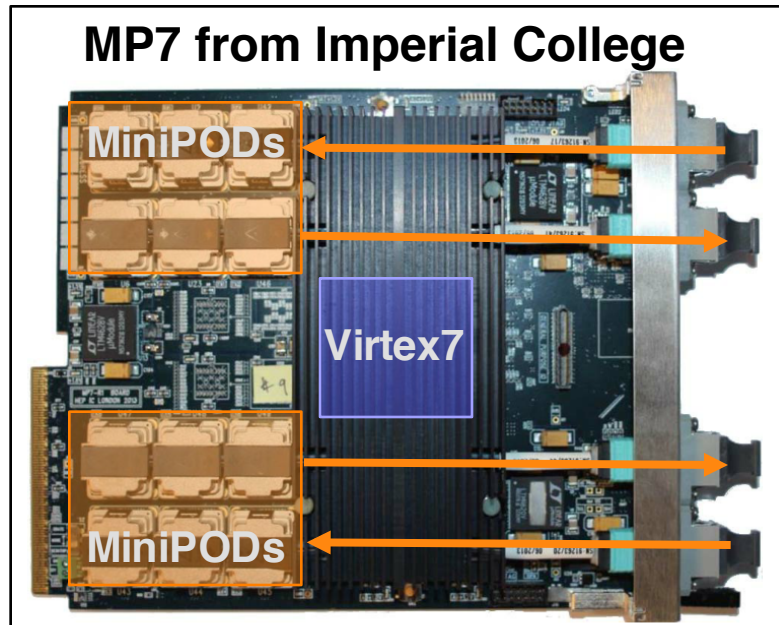
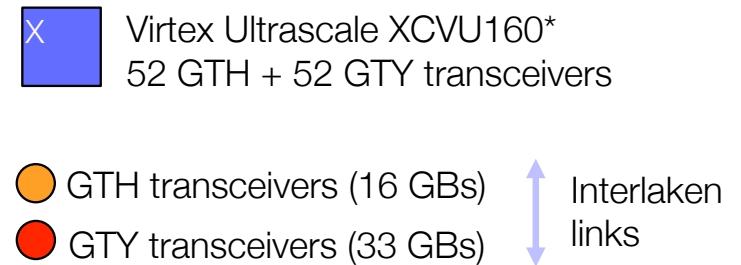
■ Data serialized into 288 optical links @ 10 Gbps (lpGBT)

- ↳ 10% bandwidth margin for packing
- ↳ Packed in ribbons of 12 links



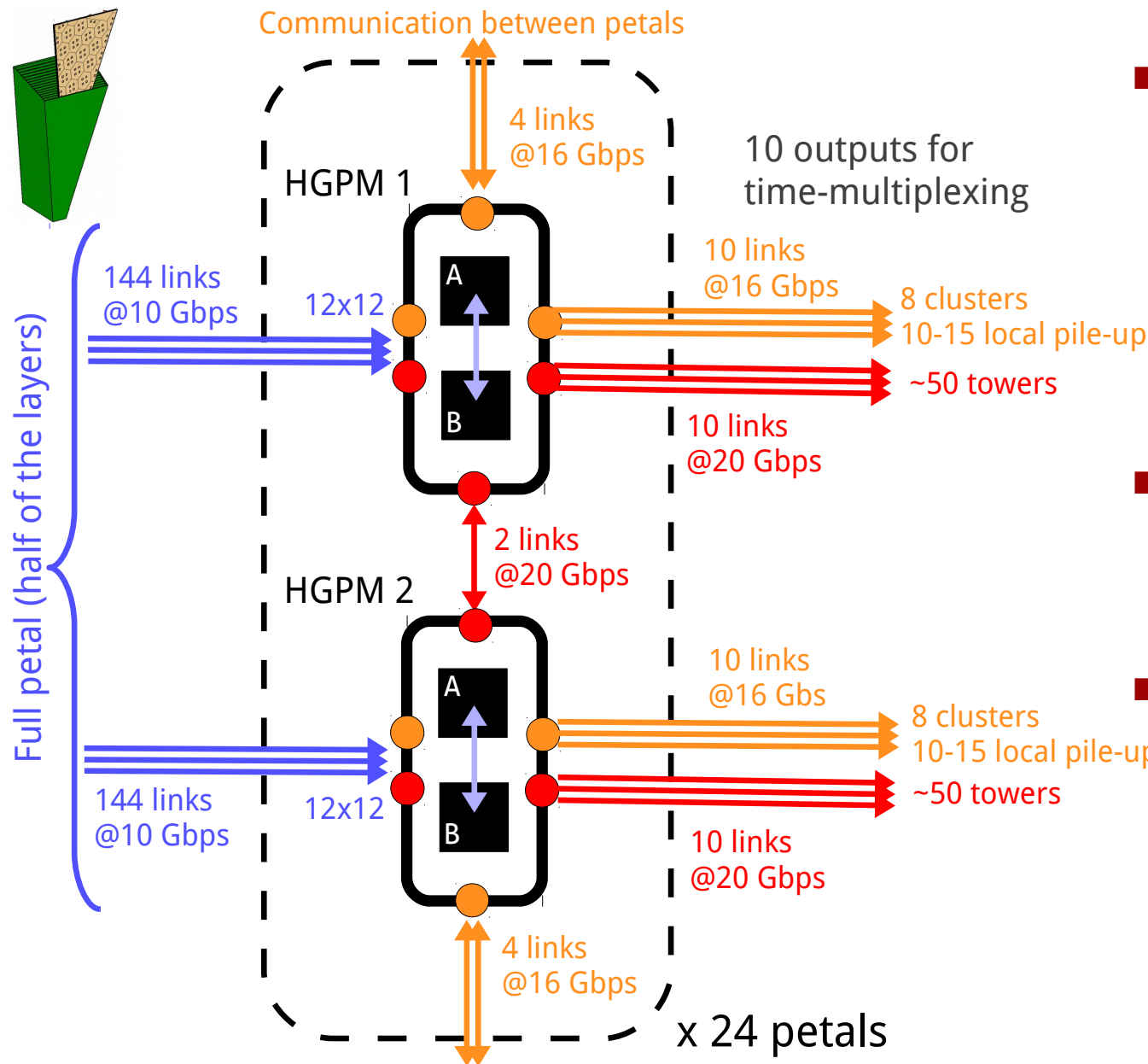
High-Granularity Processing Module

- ▶ The building block of the trigger is called **High-Granularity Processing Module (HGPM)**
- ▶ Composed of two FPGAs connected with Interlaken links
 - Act as a single processing chip with ~ 2 times more processing power and input/output links
- ▶ Based on μ TCA
 - Eventually ATCA if needed
- ▶ Consider 208 transceivers for communication
 - 104 @ 16 Gbs and 104 @ 33 Gbs
 - For inputs, outputs, and eventually communication between HGPM at the same stage



(*) XCVU190 could also be used
60 GTH + 60 GTY transceivers
30% more logic cells

Layer-1 Trigger Processing



- Two trigger processing modules per petal (30°)

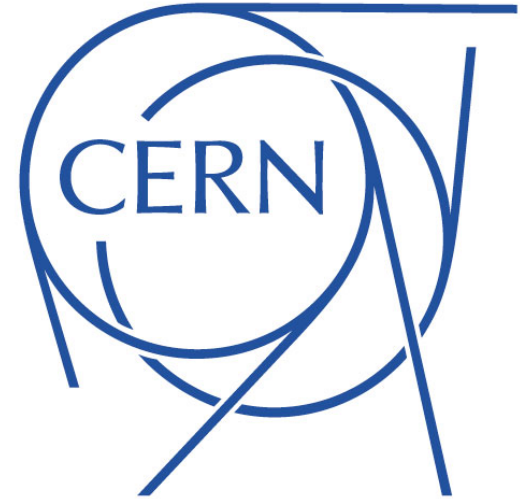
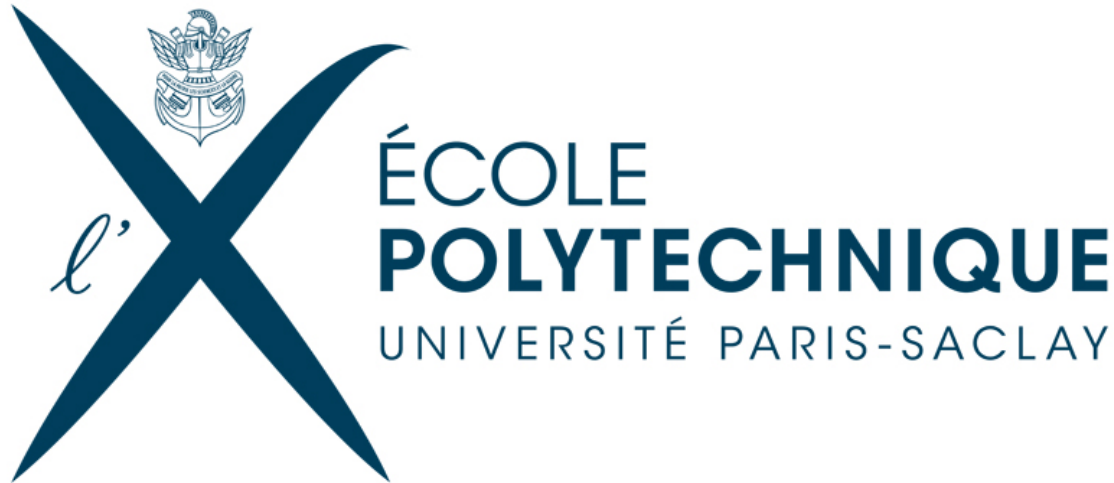
↳ One HGPM is seeing inputs from 15 layers, from half a petal

- Interconnections foreseen

↳ Data sharing

- Time-multiplexed output

Partners



MAX-PLANCK-GESELLSCHAFT

Partner – Ecole Polytechnique



Laboratoire Leprince-Ringuet
UMR (7638)

[The CNRS](#) | [Other CNRS websites](#)



Le LLR

Activités Scientifiques

Activités Techniques

Stages, thèses et enseignements

Communication

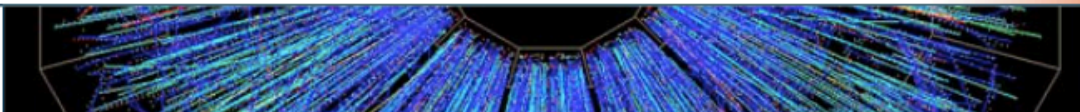
Recrutements au LLR

Séminaires

 [Twitter](#)

Directory

Search



[Home page](#) > [Le LLR](#) > [Présentation Laboratoire](#)

Présentation Laboratoire

Le Laboratoire Leprince-Ringuet (LLR) est une unité mixte de recherche (UMR 7638) de l'Institut National de Physique Nucléaire et de Physique des Particules (IN2P3) du Centre National de la Recherche Scientifique (CNRS) et de l'Ecole polytechnique. Il est implanté sur le site de l'Ecole polytechnique à Palaiseau (91). De 1974 à 2001 il a été connu sous le nom de Laboratoire de Physique Nucléaire des Hautes Energies (LPNHE-X). Ce laboratoire a été fondé en 1936 par Louis Leprince-Ringuet à sa nomination comme professeur à l'Ecole, c'est le plus ancien laboratoire de l'Ecole. Un aperçu de son histoire peut être trouvé dans le rapport d'activité de l'année 1998. Le programme de recherche du laboratoire porte sur la physique des particules et l'astrophysique. La description détaillée de ces différentes activités est accessible à partir de la rubrique : "La physique". Les expériences de physique des particules ont trait à l'étude de l'interaction électrofaible (ALEPH, H1, CMS, T2K), de la violation de la symétrie CP (BaBar), du plasma de quarks et de gluons (NA50, PHENIX). Elles ont lieu auprès des accélérateurs du CERN (Genève Suisse), de DESY (Hambourg, Allemagne), de SLAC (Stanford, Californie, USA), de RHIC (Brookhaven, New York, USA), et de JPARC (Tokai, Japon). Depuis 1990, un programme d'astrophysique, astronomie gamma de haute énergie, a été entrepris, d'abord au mont Whipple (Arizona, USA) puis sur le site de Thémis dans les Pyrénées (CAT et CELESTE), actuellement en Namibie (HESS) et dans l'espace (satellite FERMI). Ces expériences nécessitent des détecteurs de grande taille et de grande complexité, elles se déroulent en trois phases, conception et réalisation du détecteur puis exploitation. Les deux premières impliquent le concours de moyens techniques importants dans les domaines mécanique, électronique et informatique. Le laboratoire dispose d'un service dans chacun d'eux. Un service administratif assure la bonne marche de l'ensemble.

Partner – Ecole Polytechnique



DIRECTION

Directeur : Jean-Claude BRIENT

Directeur Adjoint : Pascal PAGANINI

Directeur Technique : Marc ANDUZE

Responsable Administrative : Thu BIZAT

Assistante de Direction : Elodie DUBOIS

QUALITE

Responsable Qualité : S. PAVY

SERVICE ADMINISTRATIF

Responsable :
T. BIZAT

Secrétariat:

N. AISSOUS

Assistante de

direction:

E. DUBOIS

Contrats de

Recherche:

A.M. LUBIN

Missions:

B. MARQUESNE

Finance:

B.S. MUKENDI

Communication:

S. PIEYRE

Ressources

Humaines:

M.T. THEODORA

SERVICE INFORMATIQUE

Responsable :
E. BECHEVA

A. BECK

E. BEYER

D. CHAMONT

A. CHIRON

G. GRASSEAU

P. HENNION

M. LASTES

F. MAGNIETTE

G. OYHARCABAL

J. PIEDNOIR

M. RUBIO-ROY

A. SARTIRANA

I. SEMENIOUK

F. THIAN

J. TUGLER

SERVICE MECANIQUE

Responsable :
A. CAUCHOIS

M. ANDUZE

A. BONNEMAISON

L. CHRISTOPHE

S. DHEILLY

E. EDY

O. FERREIRA

M. FROTIN

H. KHALED

P. MANIGOT

P. MARITAZ

T. PIERRE-EMILE

J. PRUDENT

SERVICE ELECTRONIQUE

Responsable :
R. CORNAT

J.B. CIZEL

G. CASTELNEAU

F. GASTALDI

Y. GEEREBAERT

M. LOUZIR

J. NANNI

S. RATEAU

T. ROMANTEAU

115

68 EN CATEGORIE CHERCHEURS :

- 29 chercheurs permanents
- 13 doctorants
- 4 post-docs
- 7 CDD chercheurs
- 6 chercheurs Emérites *
- 1 chercheur invité ∞
- 8 stagiaires

47 EN CATEGORIE IT :

- 42 IT permanents dont :
- 32 CNRS
- 10 Ecole polytechnique
- 2 CDD IT
- 1 doctorant
- 1 contrat d'apprentissage
- 1 stagiaire

PHYSICIENS

GALOP

Responsable :

A. SPECKA

R. SETHIAN

PHENIX

Responsable :

F. FLEURET

L. KLUBERG*

BIOMED

Responsable :

M. VERDERI

B. BOYER

Ch. THIEBAUX

ASTRONOMIE GAMMA

Responsable : B. GIEBELS

HESS

B. DEGRANGE*

M. HOLLER

C. MARIAUD

D. ZABOROV

F. ZEFI

CTA

G. FONTAINE*

M. DE NAUROS

S. FEGAN

M. KHATTARA

D. HORAN

J.V. V. QUISPE

FERMI

P. BRUEL

HARPO

Responsable : D. BERNARD

P. GROS

A. PHAM

S. WANG

CMS

Responsable : Y. SIROIS

Adjoint :

R. GRANIER DE CASSAGNAC

I. ANTROPOV

F. ARLEO

S. BAFFIONI

F. BEAUDETTE

P. BUSSON

L. CADAMURO

E. CHAPON

C. CHARLOT

O. DAVIGNON

L. DOBRZYNSKI*

N. FILIPOVIC

C. FLORES ∞

Ziyu GUO

S. LISNIAK

L. MASTROLORENZO

P. MINE*

M. NGUYEN

C. OCHANDO

G. ORTONA

P. PAGANINI

P. PIGARD

S. REGNARD

R. SALERNO

J.B. SAUVAN

F. STABEL

A. STAHL LEITON

T. STREBLER

Y. YILMAZ

A. ZABI - CERN

T2K

Responsable : M. GONIN

M. BUIZZA AVANZINI

O. DRAPIER

J.E. IMBER

T. MUELLER

O. VOLCY



[About CERN](#)[Students & Educators](#)[Scientists](#)[CERN people](#)[English](#)[Français](#)[Accelerators](#)[Experiments](#)[Physics](#)[Computing](#)[Engineering](#)[Updates](#)

About CERN

What is the universe made of? How did it start? Physicists at CERN are seeking answers, using some of the world's most powerful particle accelerators

At CERN, the European Organization for Nuclear Research, physicists and engineers are probing the fundamental structure of the universe. They use the world's largest and most complex scientific instruments to study the basic constituents of matter – the fundamental particles. The particles are made to collide together at close to the speed of light. The process gives the physicists clues about how the particles interact, and provides insights into the fundamental laws of nature.

The instruments used at CERN are purpose-built [particle accelerators](#) and [detectors](#).

Accelerators boost beams of particles to high energies before the beams are made to collide with each other or with stationary targets. Detectors observe and record the results of these collisions.

Founded in 1954, the CERN laboratory sits astride the Franco-Swiss border near Geneva. It was one of Europe's first joint ventures and now has 21 [member states](#).

ACCELERATORS

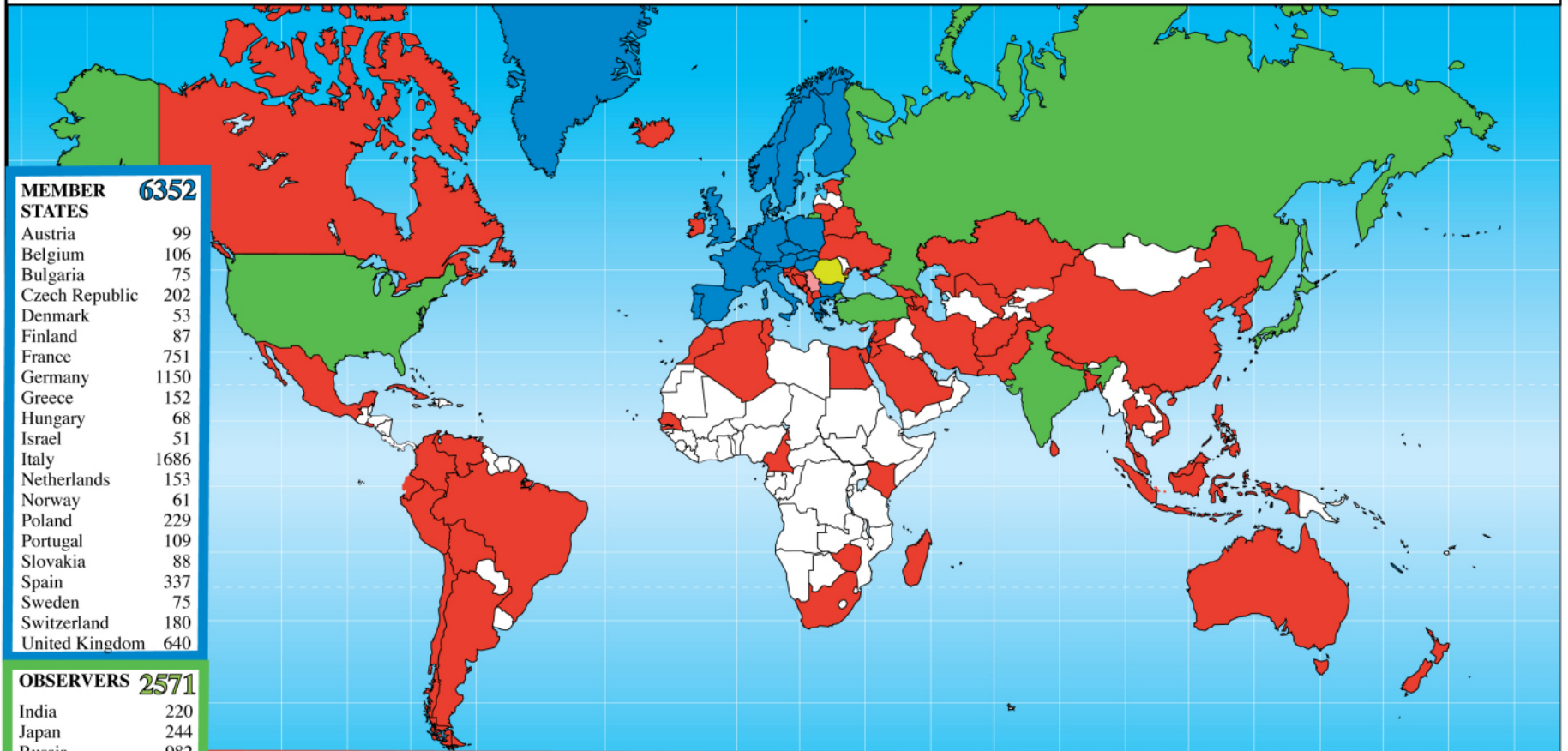
[The Antiproton Decelerator](#)[The Large Hadron Collider](#)[The Proton Synchrotron](#)[The Super Proton Synchrotron](#)[CERN Neutrinos to Gran Sasso](#)[more >](#)

EXPERIMENTS

[ACE](#) [COMPASS](#)[AEGIS](#) [DIRAC](#)[ALICE](#) [ISOLDE](#)[ALPHA](#) [LHCb](#)[AMS](#) [LHCf](#)[ASACUSA](#) [MOEDAL](#)[ATLAS](#) [NA61/SHINE](#)[ATRAP](#) [NA62](#)[AWAKE](#) [NA63](#)

Partneri - CERN

Distribution of All CERN Users by Nationality on 14 January 2014



MEMBER STATES 6352

Austria	99
Belgium	106
Bulgaria	75
Czech Republic	202
Denmark	53
Finland	87
France	751
Germany	1150
Greece	152
Hungary	68
Israel	51
Italy	1686
Netherlands	153
Norway	61
Poland	229
Portugal	109
Slovakia	88
Spain	337
Sweden	75
Switzerland	180
United Kingdom	640

OBSERVERS 2571

India	220
Japan	244
Russia	982
Turkey	146
USA	979

CANDIDATE FOR ACCESSION 118

Romania	118
---------	-----

ASSOCIATE MEMBERS IN THE PRE-STAGE TO MEMBERSHIP

Serbia	41
--------	----

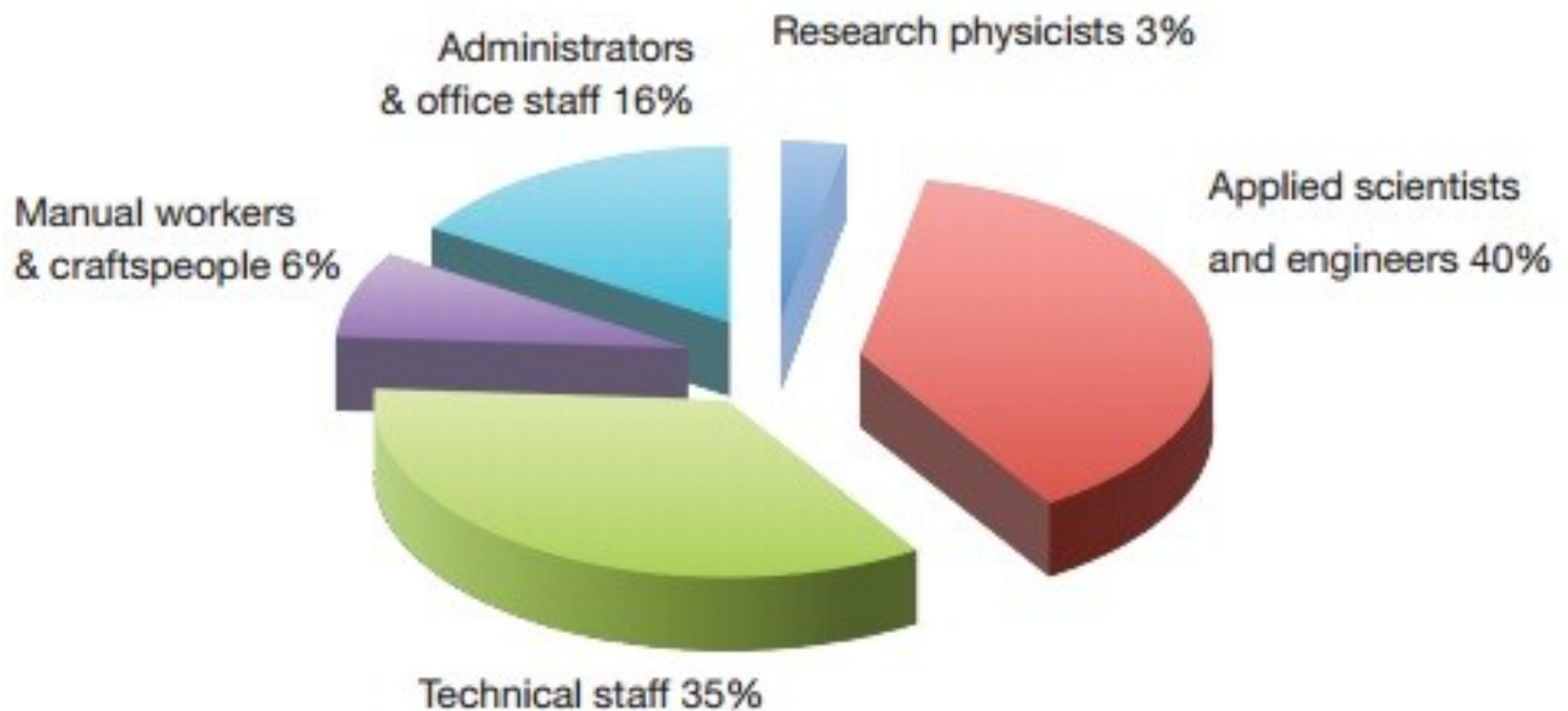
OTHERS

Afghanistan	1	Bolivia	3	Cuba	7	Iran	28	Madagascar	4	Philippines	1	Tunisia	6
Albania	2	Bosnia & Herzegovina	1	Cyprus	16	Ireland	22	Malaysia	15	Saudi Arabia	3	Ukraine	55
Algeria	8	Brazil	108	Ecuador	3	Jordan	2	Mauritius	1	Senegal	1	Uzbekistan	4
Argentina	11	Cameroon	1	Egypt	19	Kazakhstan	1	Mexico	64	Singapore	2	Venezuela	9
Armenia	25	Canada	134	El Salvador	1	Kenya	1	Montenegro	3	Sint Maarten	2	Viet Nam	9
Australia	25	Cape Verde	1	Estonia	16	Korea, D.P.R.	1	Morocco	12	Slovenia	27	Zimbabwe	2
Azerbaijan	8	Chile	12	Georgia	36	Korea Rep.	117	Nepal	5	South Africa	16		
Bangladesh	4	China	280	Gibraltar	1	Kuwait	1	New Zealand	7	Sri Lanka	5		
Belarus	47	China (Taipei)	45	Hong Kong	1	Lebanon	12	Pakistan	41	Syria	2		
		Colombia	30	Iceland	4	Lithuania	19	Palestine (O.T.)	4	Thailand	12		
		Croatia	35	Indonesia	1	Luxembourg	4						

1415

Partneri - CERN

CERN Staff



Partner – Max Planck Society



MAX-PLANCK-GESELLSCHAFT

Contact

Press Newsletter



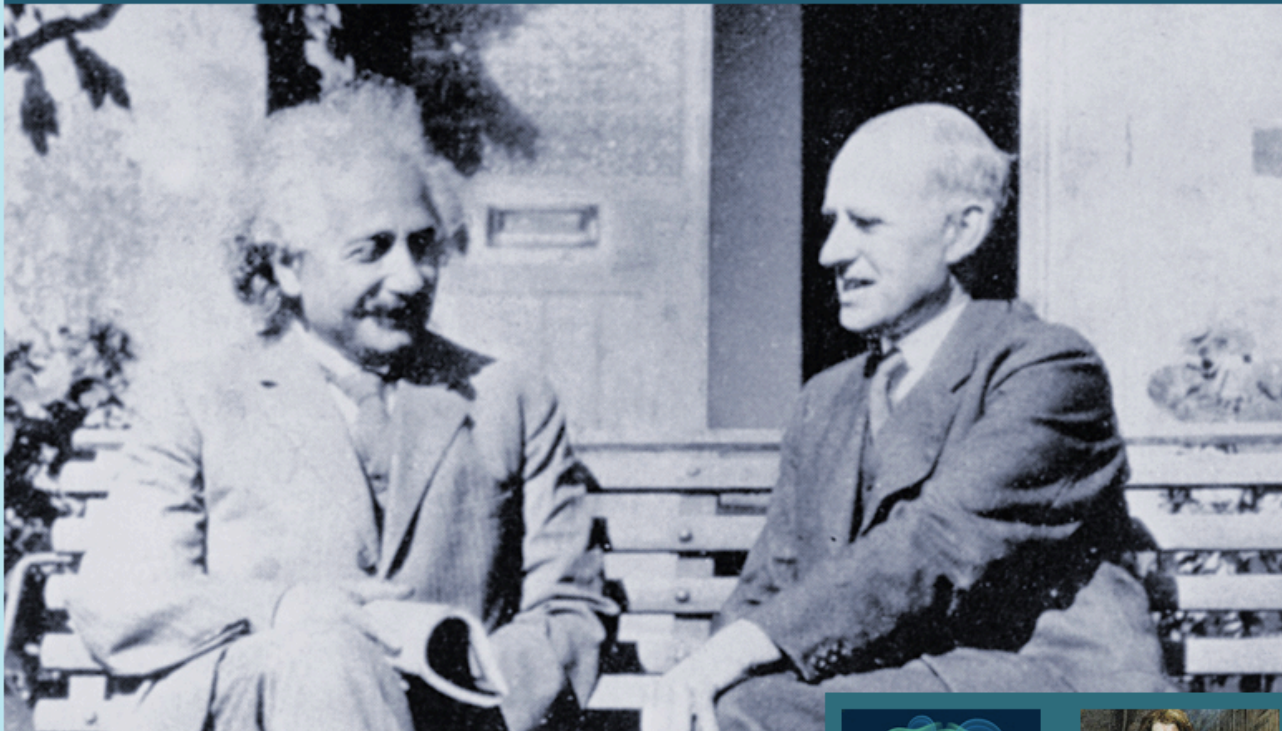
Deutsch

[ABOUT US](#) | [PRESIDENT](#) | [INSTITUTES](#) | [RESEARCH](#) | [CAREER](#) | [INTERNATIONAL](#) | [VIEWPOINTS](#) | [KNOWLEDGE TRANSFER](#)

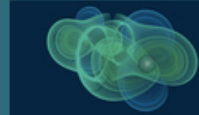
Search

► Homepage

INTERNATIONAL YEAR OF LIGHT 2015



ON MAY 29, 1919, ARTHUR STANLEY EDDINGTON (RIGHT) OBSERVED A SOLAR ECLIPSE WHICH WAS TO MAKE HISTORY



► The hunt for



► Interview: "Light also

INFORMATION FOR

- Journalists
- Scientists
- Applicants
- Politicians
- Patrons and Sponsors
- Alumni
- Companies

SOCIAL MEDIA

- Twitter
- Facebook
- Youtube
- Mobile

CALL FOR APPLICATIONS

MaxSynBio - Research Groups in Synthetic Biology

MaxSynBio - the Max Planck Research Network for Synthetic Biology - invites applications as Group Leaders for "MaxSynBio: Research Groups in Synthetic Biology". [more]

HOW TO APPLY FOR A PHD?



Partneri – Max Planck Society

HOME Contact Sitemap Imprint Internal Deutsch



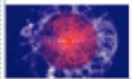
MAX-PLANCK-GESELLSCHAFT



Shortcuts



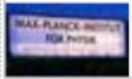
About the Institute



Research



Press and Public



Events



Graduate Studies



Jobs & Trainings



For Guests



Staff



Local Facilities



Links

Max-Planck-Institut für Physik

About the Institute

Scientists at the Max Planck Institute for Physics in Munich explore the smallest constituents of matter and their interactions. The behavior of these elementary particles, quarks, charged leptons and neutrinos, help us to better understand the origin of the universe. The Institute collaborates at an international level on experiments at major particle physics laboratories throughout the world. This includes CERN in Geneva, DESY in Hamburg and the Gran Sasso underground laboratory in Italy. Experiments investigating cosmic rays are also performed on the Canary Island La Palma. Theorists not only interpret the results of the experiments jointly with the experimental physicists, but also develop new theories for a better understanding of our Universe... [more]

Research

Our research focus is on the physics and astrophysics of elementary particles, from both an experimental and a theoretical perspective. [more]

International Max Planck Research School on Elementary Particle Physics

The International Max Planck Research School on

News

Current Events

Press Releases

Local Facilities

Publications

Staff

For Guests

Guest House

IT Info

Jobs & Trainings

Job Offers

Apprenticeships at the Institute

Contact

Address

Directions to the

Project organisation

WP1: Managment

Leader: Ivica Puljak

WP2: Staff exchange

Leader: Nikola Godinović

WP3: Trainnings, workshops, schools

Leader: Ilja Doršner

WP4: Dissemination and outreach

Leader: Damir Lelas

Management Board

Project leader: Ivica Puljak

WP leaders

Group leaders

Secretary: Project assistant

HEP group

Leader: Ivica Puljak

DE group

Leader: Julije Ožegović

PCBDA group

Leader: Sven Gotovac

Advisory Board

13 members

Twining - Results

- ▶ 546 project proposals submitted
 - 321 project above threshold (10 out of 15)
 - 65 projects will be financed
- ▶ Total budget is EUR 66.24 million
 - Success rate is 11,9 %
- ▶ 26 projects from Croatia
 - 6 below threshold, 20 in the main list, 4 accepted for financing

List	EU Rank	Final Score	Coordinator		Topic	Type of Action	Proposal			
			Organisation	Country			Number	Acronym	Title	Duration
Main list	1	15	SVEUCILISTE U ZAGREBU AGRONOMSKI FAKULTET	HR	H2020-TWINN-2015	CSA	692249	MendTheGap	Smart Integration of Genetics with Sciences of the Past in Croatia: Minding and Mending the Gap	36
Main list	11	15	SVEUCILISTE U ZAGREBU FAKULTET ELEKTROTEHNIKE I RACUNARSTVA	HR	H2020-TWINN-2015	CSA	691980	EXCELLABUST	Excelling LABUST in marine robotics	36
Main list	46	14	RUDER BOSKOVIC INSTITUTE	HR	H2020-TWINN-2015	CSA	692194	RBIT-WINNING	Rudjer Bošković Institute: Twinning for a step forward of the Theoretical Physics Division	36
Main list	48	14	EKONOMSKI INSTITUT ZAGREB	HR	H2020-TWINN-2015	CSA	692191	SmartEIZ	Strengthening scientific and research capacity of the Institute of Economics Zagreb as a cornerstone for Croatian socioeconomic growth through the implementation of Smart	36

SPLITHEP - Evaluation summary report

Evaluation Result

Total score: 11.00 (Threshold: 10)

Criterion 1 - Excellence

Score: 4.00 (Threshold: 3/5.00 , Weight: 100.00%)

Criterion 2 - Impact

Score: 4.00 (Threshold: 3/5.00 , Weight: 100.00%)

Criterion 3 - Quality and efficiency of the implementation

Score: 3.00 (Threshold: 3/5.00 , Weight: 100.00%)

SPLITHEP Results

Criterion 1 - Excellence

Score: **4.00** (Threshold: 3/5.00 , Weight: 100.00%)

Positive

Clear objectives, pertinent to the call

Credible approach and concept

Proposal focused on interdisciplinary aspects

Appropriate and detailed coordination and support measures

Negative

Coordination measures for benefiting from organizational and operational competences of international partners not convincingly described

Lessons learned

Describe better coordination measures

SPLITHEP Results

Criterion 2 - Impact

Score: **4.00** (Threshold: 3/5.00 . Weight: 100.00%)

Positive

Proposed impacts aligned with the work programme

Expected impacts quantified in terms of publications, citations and EU project applicat.

Dissemination and communication measures adequately described and of good quality; positively ambitious reaching out to a large number of external national organizations

Negative

Insufficient discussion of impacts on the potential stakeholders other than universities

IPR issues not discussed sufficiently

Lessons learned

Include other stakeholders

Extend the part on the IPR issues

SPLITHEP Results

Criterion 3 - Quality and efficiency of the implementation

Score: **3.00** (Threshold: 3/5.00 , Weight: 100.00%)

Positive

Appropriate work plan; complementary partners

Coordinator has pre-established links partners and collaboration with renowned internat. projects

Project leader is a renowned scientist with management experience

Advisory board is monitoring the progress

Negative

Unbalanced activities between high and low performing partners

Work plan does not sufficiently demonstrate how the project will lead to the expected impact

Budget breakdown detailed, but lacks transparency and clarity

Management work concentrated on the project manager and assistant

Relation between the management bodies not discussed adequately

Risk and innovation management are not adequately discussed.

Lessons learned

Better balance of activities; Better connect WP and expected impact; Improve management

More discussion about risk and innovation management

Next Twinning call

- ▶ WIDESPREAD-05-2017
 - Twinning Opening: 09 May 2017

Thank you!