

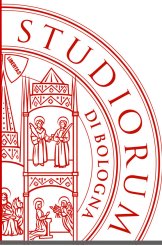
Co-funded by the
Erasmus+ Programme
of the European Union



iTHEPHY
Innovative Team - Teaching
for Physics

Project funded by the European Community / AGENZIA
NAZIONALE INDIRE
Budget: **368990** euro
Coordinator: **UNIBO**
PI: dott. Angelo Carbone

KA2 - Cooperation for Innovation and the Exchange of Good Practices
KA203 - Strategic Partnerships for Higher Education



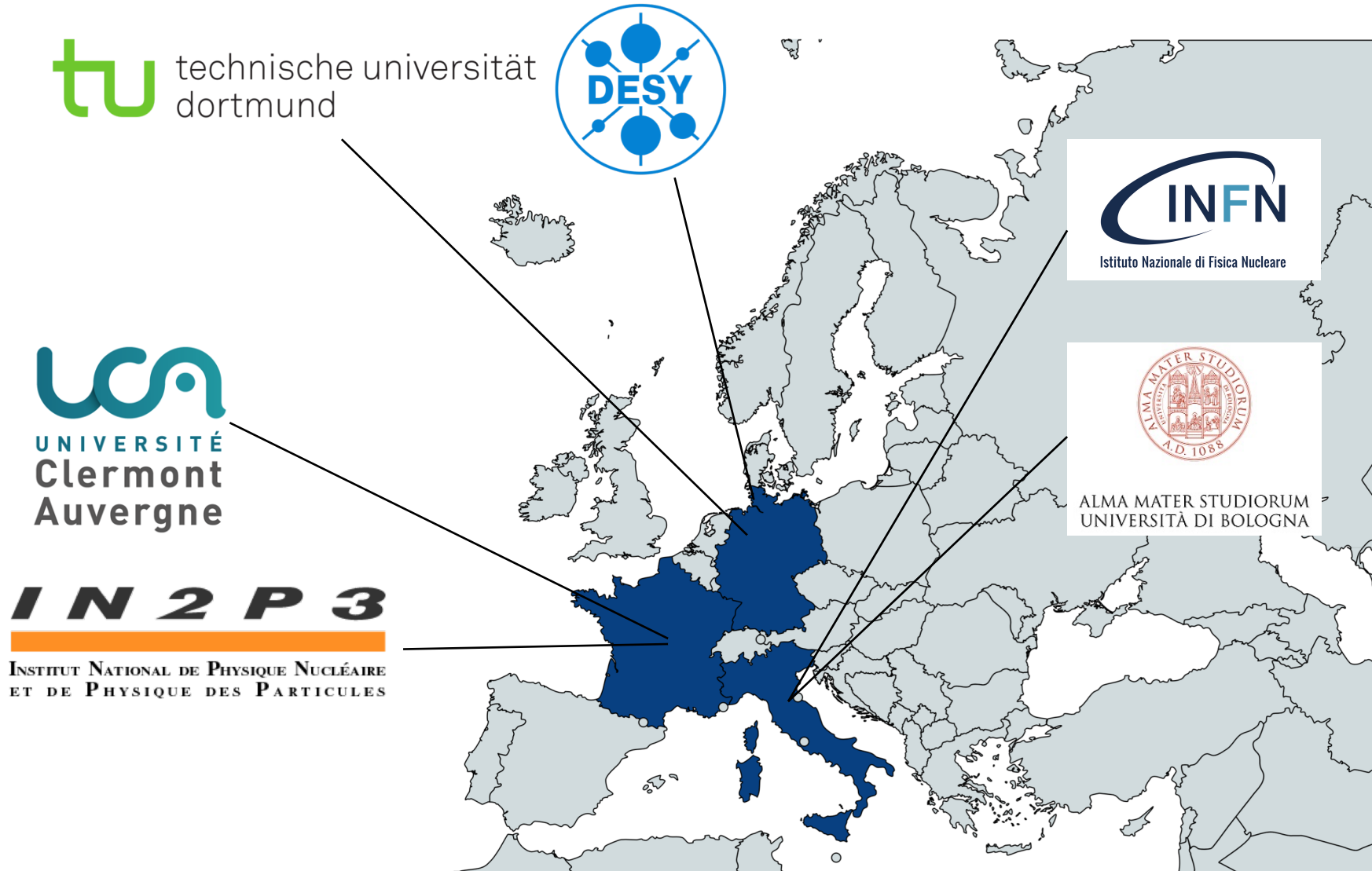
History: before this project

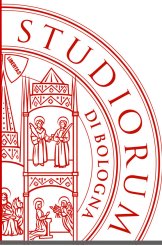


- The idea to apply for this project started after 3 years of collaboration between Bologna, the University of Dortmund and the University of Clermont-Auvergne
 - Three editions (2015/16/17) of the ISHEP spring school (Cargese, Corsica) for students enrolled in the master degree of the three universities (and PhD students)
- We also received funding for 15k euro from the Franco-German University for the Spring School and for the 2017 and 2018 editions
- The project is also co-funded (about 20k euro) by the University of Bologna to include non-EU students



The consortium: a synergy between Universities and research institutions



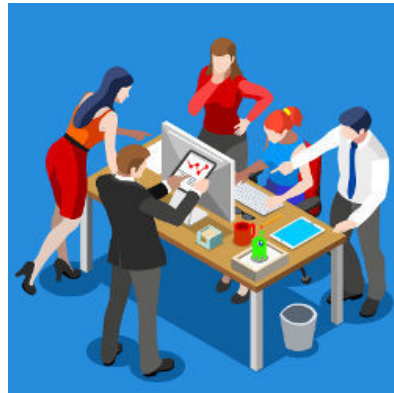


KA203 - Strategic Partnerships for Higher Education : main objectives



- Who is funded?
 - universities
 - research Institutions
 - industries
- Aim?
 - improve the teaching quality
 - increase the collaboration among European institutions
 - promote the usage of information technologies tools
 - ensuring education and research are mutually reinforcing
 - promoting internationalization and mobility

- Main idea:
 - team of students (2nd year of master degree) from each university to work together to a real research project
 - each team will be supervised by a teacher/researcher from the consortium



- Goal:
 - increase the internationalization level of the master degree
 - give to the students team-work skills
 - promote international mobility



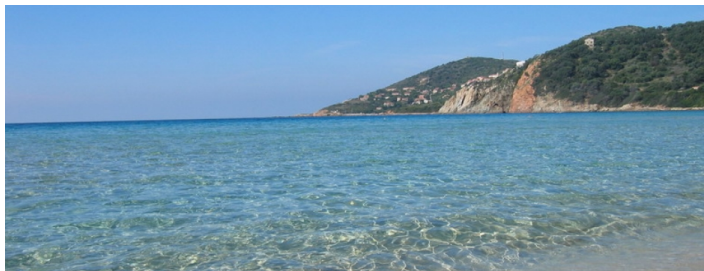
Intellectual Outputs



- The project foresees 3 Intellectual Outputs:
 - guided exercises with solution to be implemented on e-learning (moodle) platform
 - exercise with full and partial solutions
 - A web-based platform to support the team during the project
 - video web-conference plugin
 - chat room
 - shared area
 - scheduler/agenda for planning meetings between teachers and students and between students
 - A project management tool for tracking projects, assigning sub-tasks and tracking their progress...
 - A final document that reports the experience with the aim of replicability of the project in other master degree (not only in physics)

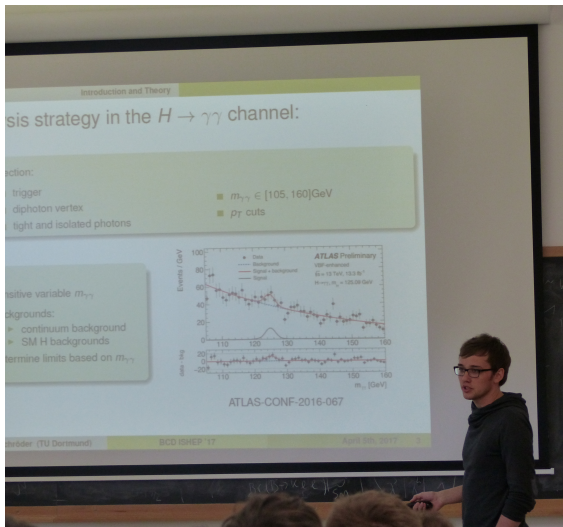
Summer/Spring Schools (Cargese, Corsica)

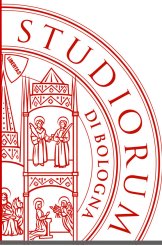
- We receive funds for two edition of the schools
 - 2018-edition will be focused on testing the new e-learning materials developed and the new web-based platform
 - 2019-edition will be dedicated to present results of the team. Students and supervisor will meet in person to develop the project
- Both the schools will foresee lectures, and seminars.





Summer/Spring Schools (Cargese, Corsica)

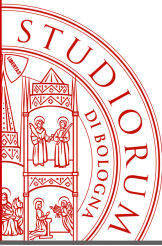




Summer/Spring Schools (Cargese, Corsica)

2018 edition

	Monday 05/07	Tuesday 05/08	Wednesday 05/09	Thursday 05/10	Friday 05/11
08:45 - 12:15	Standard Model (G. Hiller)	Flavour Physics (A. Carbone)	BSM (J. Brod)	Student Talks	Cosmology (J. Orloff)
12:15 - 14:00	Lunch break	Lunch break	Lunch break	Lunch break	Lunch break
14:00 - 17:30	Neutrino Physics (M. Sioli)	SM Future (S. Monteil) Future Projects (All teachers)	Top Quark (K. Kröninger)	Student Talks	Particle Theory (J. Blümlein) Closing
Later	Welcome Drink (18:30)		Social Dinner (19:00)	Volley Competition (17:00)	



Summer/Spring Schools (Cargese, Corsica)



- Official summer school of UNIBO
- Possibility to deliver 6-ECTS (CFU)
- For the future (after 2020) the School + the project activities can be recognize as one of the activities inside the Master Degree, corresponding to 6 ECTS



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

SUMMER / WINTER SCHOOLS

Summer and winter schools are a recent but important addition to the University of Bologna's educational spectrum. They are usually structured as intensive courses on many different subjects designed to match new educational and professional needs.

7 Summer / Winter Schools

Canossa e gli altri. Progettare la valorizzazione di un castello e del suo territorio. ⊕
Chemical and genomics-based strategies in the discovery of novel drug targets - cod. 8631 (2017) ⊕
European and Comparative Environmental Law - cod. 8975 ⊕
Greek and Latin Summer School - cod. 8627 (2018) ⊕
Innovation and Technology Management in Medical and Pharmaceutical Biotechnology ⊕
Lavoro e Legalità - cod. 5503 ⊕
Strumenti e metodologie di laboratorio per la didattica delle scienze nella scuola primaria - cod. 5500 (2017) ⊕

CONTACTS

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TELEPHONE

+39.051.2098140

FAX

+39.051.2098039

TIMES

Monday, Tuesday, Wednesday, Friday:

9:00 to 11:15;

Tuesday and Thursday:

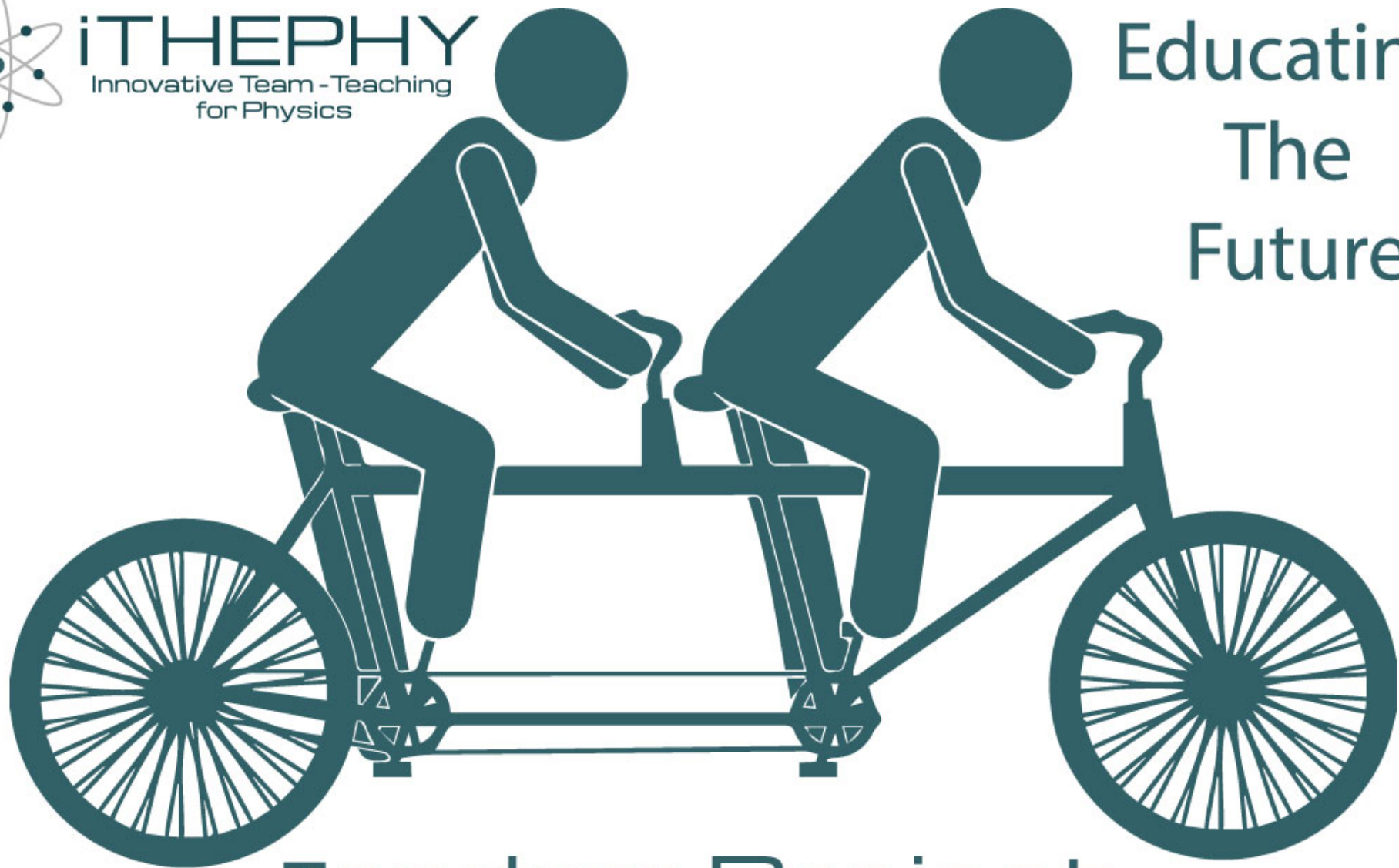
14:30 to 15:30

**We will be able to deliver credits to
European students**

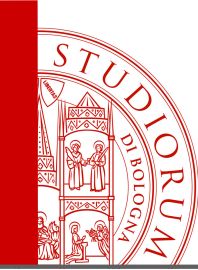


iTHEPHY
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for Physics

Educating
The
Future

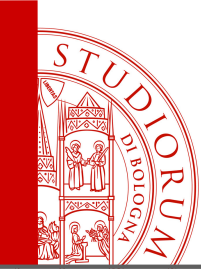


Tandem Project



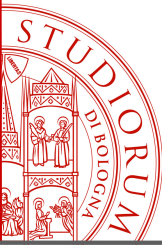
What's all this about?

- The idea of the whole project is to allow you students to “emulate” what researchers do in their research activity *in an international context*
- What are the ingredients to perform a research activity?
 1. **Project:** A project is an idea which will be develop and transformed in something “real”
 2. **Target:** a starting date and a completion date
 3. **Timeline:** organize a calendar, considering all the intermediate steps, indicating when it's time to show preliminary results to other colleagues, to your supervisors etc
 4. **Document,** i.e. a product where you describe the details of your method, what you did and what you obtained
 5. **Present final results** to an international conference: the students have this possibility. It will be the **ISHEP school** in Cargese...



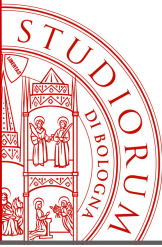
Tandem project in practice

- But the students are not (yet) a real researcher! They are (still) students... and by the way this a teaching activity, not a real research, so they need:
 - **Supervisors**, which will guide them in the various steps of your project
 - **Tools**, which will allow them to communicate, exchange files, material, documents... ideas
 - They will not see results published on Nature, but they will see results transformed in **ECTS credits**, after a formal examination
- At present **16+5 students** are on board:
 - 10 from Unibo, 4 from CF, 2 from TUD
 - 2 from Australia, 1 from Colombia, 1 from Brazil and 1 from Russia



Tandem projects

	Title	Students	Supervisors
TP-1	BSM physics in 4-top final states: Survey of the BSM models leading to NP in 4 tops and Implementation of the NP models in FeynRules/MadGraph (MC)	Piani (Unibo) Korcari (Unibo)	Maltoni (Unibo) Calvet (UCA)
TP-2	Machine learning application to enhance the discovery sensitivity	Di Pede (Unibo) Vaslin (UCA) Abicht (TUD)	Sioli (Unibo) Donini (UCA) Kroeninger (TUD)
TP-3	Higgs self-coupling at the FCC: HH production	Cavalli (Unibo) Hilali (UCA)	Braibant (Unibo) Boumediene (UCA)
TP-4	Sensitivity estimates in direct searches for new physics	Ballabene (Unibo) Galli (Unibo)	Cervelli/Sidoti (Unibo) Boumediene (UCA)



Projects

	Title	Students	Supervisors
TP-5	Sensitivity estimates for rare decays	Villa (Unibo) Sambe (UCA) Elles (UNAL)	Carbone (Unibo) Lefevré (UCA) Milanes (UNAL)
TP-6	SMEFT at the LHC: EFT interpretation of Top-quark measurements at the LHC and beyond	Battisti (Unibo) Tail (UCA) Beck (TUD)	Negini (Unibo) Monteil (UCA) Kroeninger (TUD)
TP-7	Evaluation of the sensitivity for a future detectors: <ul style="list-style-type: none">- tracking detectors with high time and space resolutions- Calorimeters with high resolution and segmentation	Poppi (UNIBO) Lunerti (UNIBO)	Preghenella (UNIBO) Carbone (UNIBO) Albrecht (TUD)



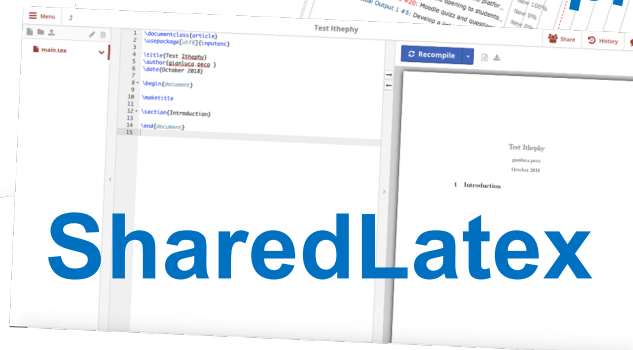
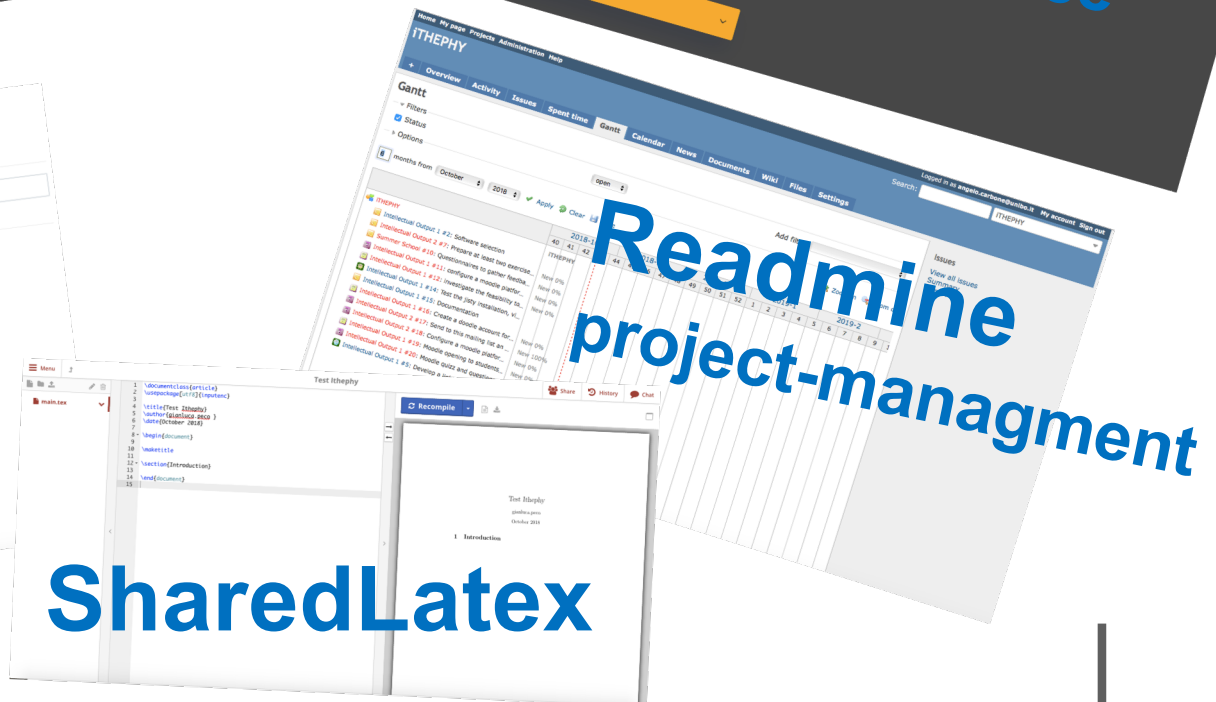
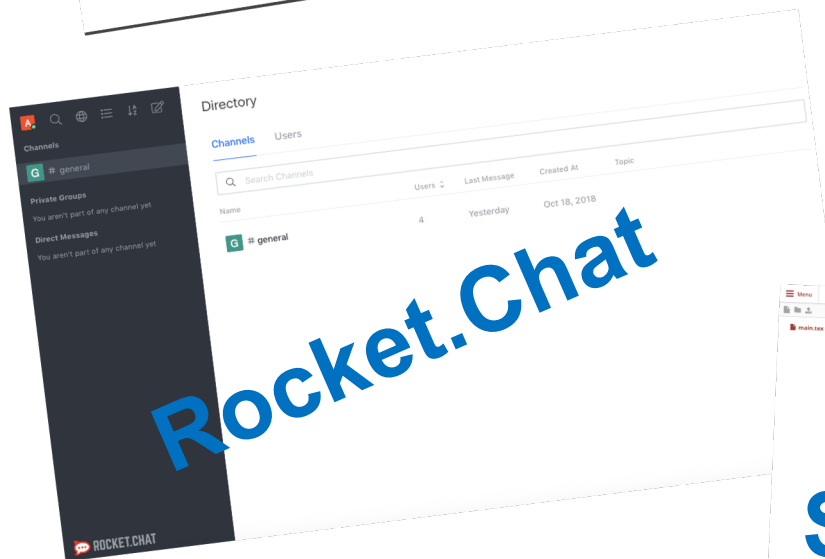
Proposed project calendar and deadlines

- The fifth edition of the ISHEP School in Cargese will be in the week 8-12 April 2019
- The students have **five months** to develop their project: Nov-Dec-Jan-Feb-Mar
- Deadlines for students and supervisors:
 - 10th of November 2018 submission of the project proposal (1 page)
 - 18th of December 2018 first report at the tandem project collaboration meeting (presentation in a plenary session)
 - 20th of February 2019 first report at the tandem project collaboration meeting (presentation in a plenary session)
 - 8-12 April final report at the Cargese School
 - 15th of June submission of the final report in a form of a “paper ”
 - 30th of June evaluation of the project with the final mark



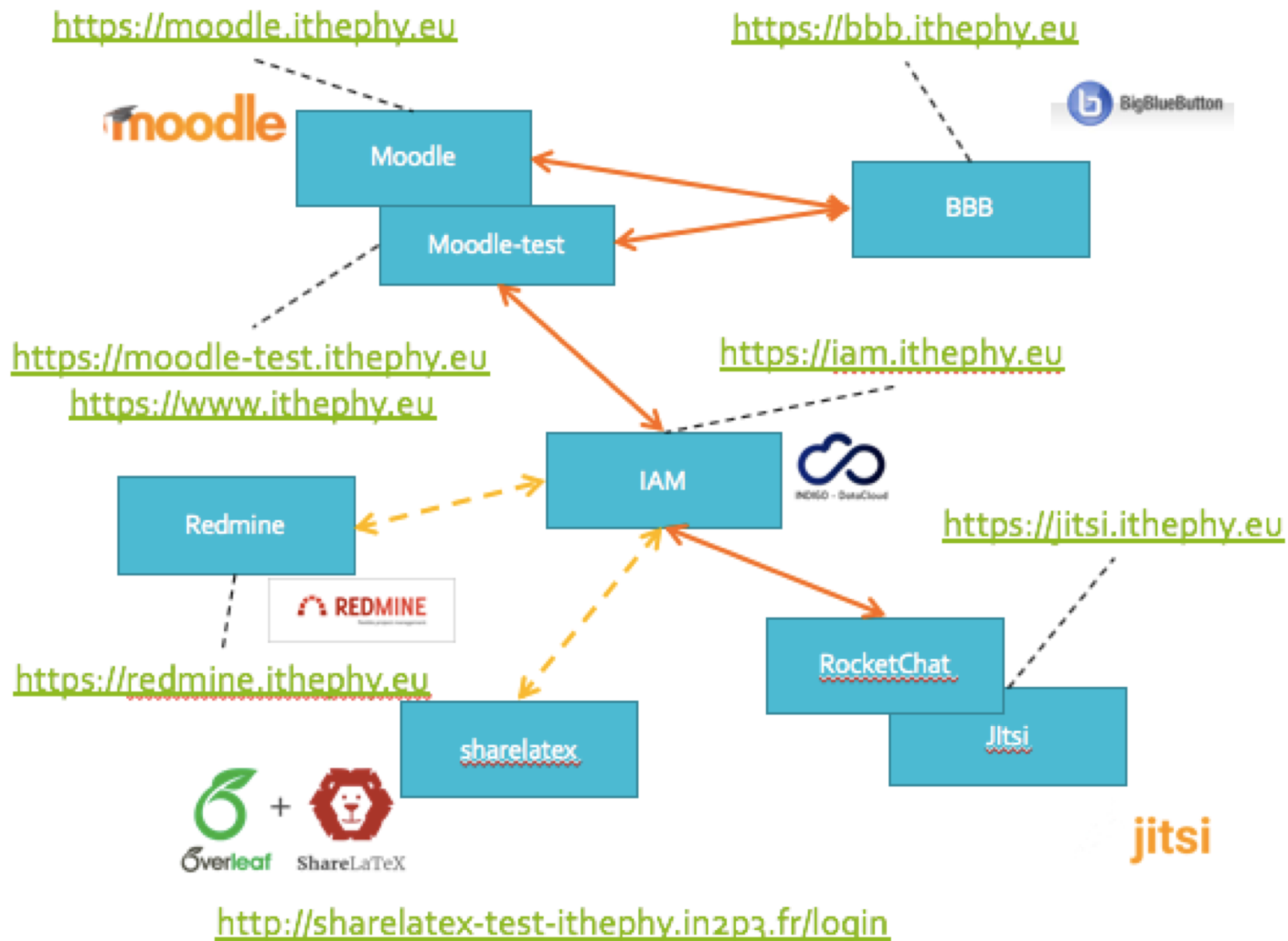
ITC tools

OPEN SOURCE





iTHEPHY logical output





Moodle

Moodle is a free, online Learning Management system enabling educators to create their own private website filled with dynamic courses that extend learning, any time, anywhere.

- Customizations:
 - Installation using Ver. 3.4.2 following standard guidelines for CentOS 7
 - Modified Theme and layout
 - Modified basic editor for Latex editing
 - Installation and configuration of BBB plugin for video lessons
 - Configuration of automatic backup – restore method of lessons
 - Configuration of OAuth2 plugin for IAM auth
 - Configuration of SSL with Letsencrypt



Moodle

Navigation

Administration

Home Dashboard Events My Courses

Hide blocks Full screen

Angelo Carbone

ANNOUNCEMENTS No news items to display

Tandem Projects Course >

iTHEPHY Exercises Course >

International School... Course >

Courses

- Tandem Projects
- iTHEPHY Exercises
- International School On High Energy Physics
- BCD School Testroom
- test
- All courses ...

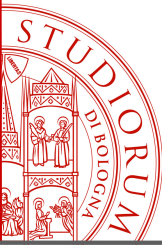


Readmine

Redmine is a flexible project management web application. Written using the Ruby on Rails framework, it is cross-platform and cross-database.

Redmine is open source and released under the terms of the [GNU General Public License v2](#) (GPL).

- Customizations:
 - Standard installation *v 3.4.4.stable* following the standard guide for CentOS 7
 - Modified theme and layout
 - Configuration of OAuth2 in IAM auth (to do)
 - Configuration of SSL with Letsencrypt
 - Used (not too much) for project organization
 - To do: data-integration with Moodle



Readmine

Home Pagina personale Progetti Amministrazione Aiuto

Collegato come admin Il mio utente Esci

iTHEPHY Project Management

Ricerca:

Pagina personale

Aggiungi:

Le mie segnalazioni (0)

Nessun dato disponibile

Segnalazioni (11)

#	Progetto	Tracker	Stato	Oggetto
17	ITHEPHY	Intellectual Output 2	New	Send to this mailing list an example of an exercise with guided solution as the on shown at the meeting
7	ITHEPHY	Intellectual Output 2	New	Prepare at least two exercise, following the Cornelius' example connected to the lecture of the Summer School
18	ITHEPHY	Intellectual Output 2	New	Configure a moodle platform with exercise and multiple choices quiz
14	ITHEPHY	Intellectual Output 1	New	Test the jisty installation, video and chat
16	ITHEPHY	Intellectual Output 1	New	Create a doodle account for Cornelius
15	ITHEPHY	Intellectual Output 1	New	Documentation
5	ITHEPHY	Intellectual Output 1	New	Develop a light html integration page to integrate moodle, jitsy
12	ITHEPHY	Intellectual Output 1	New	investigate the feasibility to have an eduGain system for the authentication
11	ITHEPHY	Intellectual Output 1	New	configure a moodle platform with exercise and multiple choices quiz
10	ITHEPHY	Summer School	New	Questionnaires to gather feedback on the pilot version of the products



BBButton

BigBlueButton enables real-time sharing of audio, video, slides (with whiteboard), polling, emote icons (including raise hand), chat, and the presenter's desktop

- Customizations

- Standard installation v2.0 following the guide for Ubuntu 16.04.4 LTS
- Configuration of SSL with letsencrypt
- Integrated with the moodle plugin used directly as an object within the courses
- <http://docs.bigbluebutton.org/install/install.html>



BBButton

Browser address bar: <https://bbb.bo.infn.it/client/BigBlueButton.html?sessionToken=7kx9c>

Navigation: Most Visited, Getting Started, last, presid, boNet, boNet, OpenSourceFarming, domotics, ObserviumPres, course&Puppet, pbs/torque, Foreman/puppet, Mac security, MDM, OpenMDM

BigBlueButton | ITHEPHY1

Buttons: Microphone, Phone, Video, Screen

Tasti Scorciatoie

Gestione partecipanti

gp (Tu)

Presentazione: default.pdf

Welcome to BigBlueButton

BigBlueButton is an open source web conferencing system for on-line learning.

Click the images on the right to view tutorial videos for instructors and students

If you need help with your audio, watch [setting up audio](#)

To view more tutorial videos, along with information on the open source project, visit bigbluebutton.org

Moderator / Presenter

Viewer

Chat

Tutti Opzioni

15:06

Welcome to **ITHEPHY1**!

For help on using BigBlueButton see these (short) [tutorial videos](#).

To join the audio bridge click the phone button. Use a headset to avoid causing background noise for others.

This server is running [BigBlueButton](#).

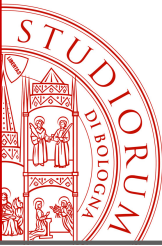
Invitation link - <http://bbb.bo.infn.it/b/meetings/ITHEPHY1>

gp 15:07
chat

Hi all

© 2017 [BigBlueButton Inc.](#) (build 831)

[Audio WebRTC] Italiano Layout base



Jitsi

Jitsi is a set of open-source projects that allows you to easily build and deploy secure videoconferencing solutions. At the heart of Jitsi are Jitsi Videobridge and Jitsi Meet, which let you have conferences on the internet, while other projects in the community enable other features such as audio, dial-in, recording, and simulcasting.

- **Customization**

- Standard installation *V1.0.2996* following the guide [Ubuntu 16.04.4 LTS](#)
- Configuration of SSL with letsencrypt
- <https://github.com/jitsi/jitsi-meet>



Jitsi

Browser address bar: <https://jitsi.bo.infn.it/THEPHY>

Chat messages:

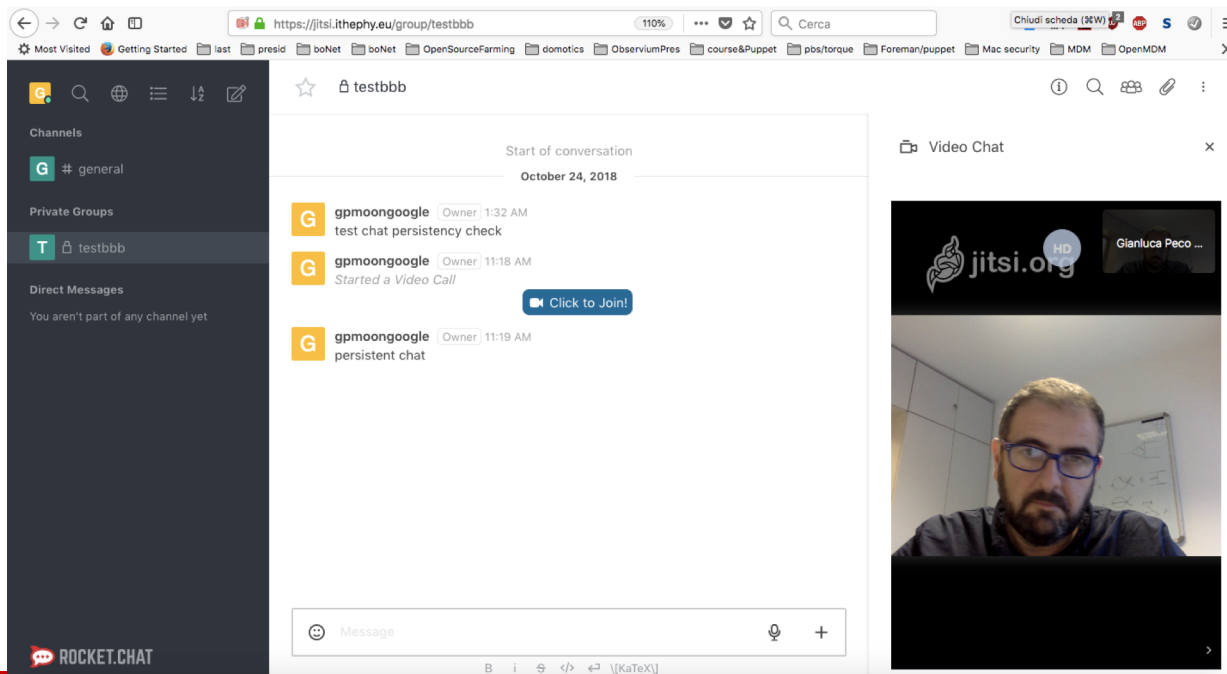
- GP 15:47:10
- GP 15:47:13
- Hi all 15:47:13

Control bar icons: Screen sharing, Hand raising, Chat, Microphone, Mute, Video, Settings



Rocket.Chat

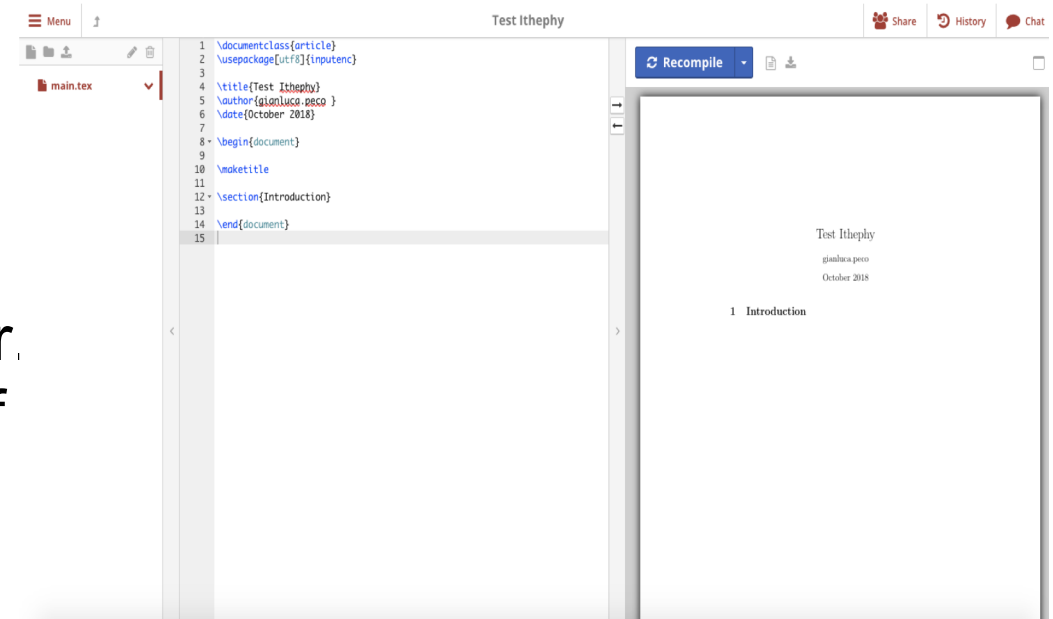
- Communicate and collaborate with your team, share files, chat in real time or switch to video/audio conferencing.
- Watch the video to see how Rocket.Chat provides the ideal platform for your team or business needs.
 - ...From the rocket.chat site





Sharing latex

- **ShareLaTeX** is an online [LaTeX](#) editor that allows real-time collaboration and online compiling of projects to [PDF](#) format. [\[3\]](#)
- In comparison to other LaTeX editors, ShareLaTeX is a server-based application, which is accessed through a web browser. A publicly maintained instance of ShareLaTeX is available at <https://www.sharelatex.com>, and the software to run a personal instance of ShareLaTeX is available under an open-source license. [\[4\]](#)



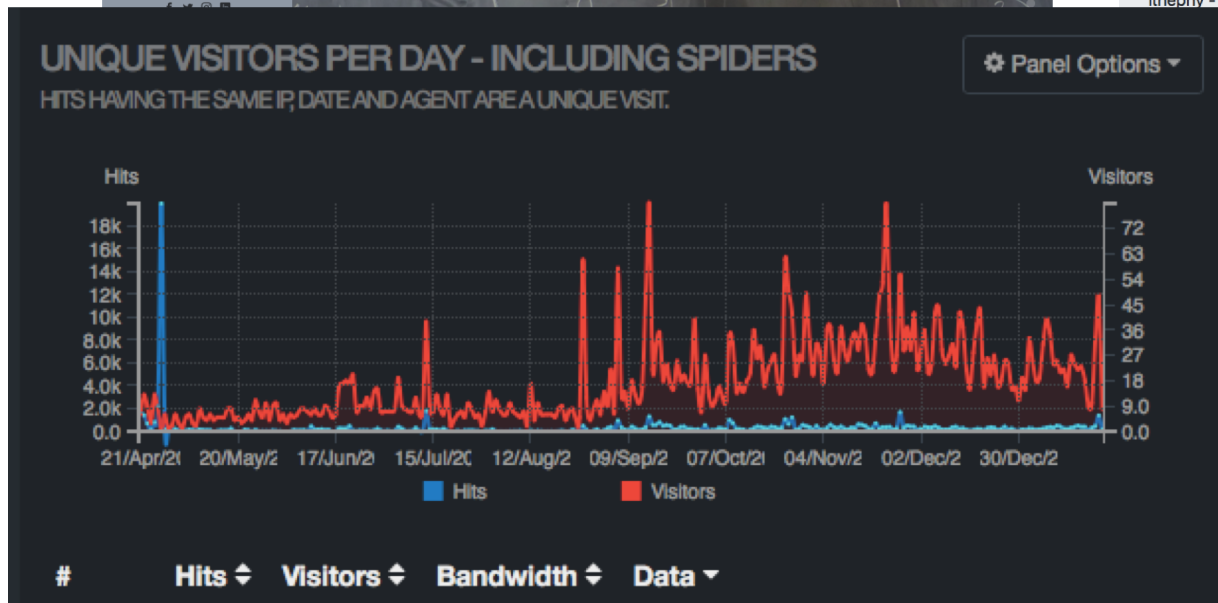


Dissemination

www.ithephy.eu

<https://www.facebook.com/ithephy>

@ithephy



Aggiungiti al team IthePHY - Innovative Team - Teaching for Physics

Aggiungiti al team

Cambia copertina

iTHEPHY Innovative Team - Teaching for Physics

Ti piace Pagina seguita Condividi

Scopri di più

Informazioni sulle Pagine
Settimana 7: Raggiungi più persone interessate alla tua azienda
Esplora tutte le settimane



Integrating the activities in the curriculum of the students

- We are implementing an innovative idea of teaching at level the master degree curriculum
 - **complementary to the front lectures**
- Promote internationalization
- 6 ECTS
- From the next year this activities will become part of

1) Compulsory Courses

		PERIODO ?	TIPO ?	CFU ?
87928	TRANSVERSAL SKILLS FOR PHYSICS-RELATED PROFESSIONS	1	F	6
60750	FINAL EXAMINATION	2	E	12
87650	ADVANCED PROFESSIONAL AND RESEARCH SKILLS IN PHYSICAL SCIENCES	E	F	6



Conclusions

- The iTHEPHY project proposes an **innovative** and **unconventional** approach to the teaching
 - Based on project-working teaching
 - Complementary to frontal lectures
- The iTHEPHY promotes internationalization
- European and non-EU students are involved
- If you are interested in replicating this activity in your institutes feel free to contact me, Jean Orloff and Stephane Monteil,
 - Angelo Carbone: angelo.carbone@unibo.it