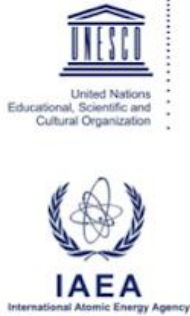




The Abdus Salam  
**International Centre  
for Theoretical Physics**



# **Learning Management Systems and tools for Collaborative Scientific Work**

**ICTS Webinar III**

# Outline

- Introduction
- Advantages
- Learning Management Systems deployed for ICTP Community
- Communication tools
- Tools deployed for Scientific Collaboration
- Notes
- Quick Reference
- Q&A

# Introduction

- Covid-19 pandemic means physical face to face teaching and meeting are not possible and scientific collaboration is also affected.
  - **Teaching:** Learning Management Systems - **LMS**  
(Moodle, OpenEDX, Google Classroom)
  - **Collaboration:** tools for collaborative **scientific** work  
(Jupyter, Dbox, Fiduswriter)

# Advantages

- **Security, Customized** (as it is hosted on premises on the ICTP private cloud)
- **No need to register** with the service (use ICTP account credentials)
- **Improve Interaction and Engagment**
- Possibility to invite **Non-ICTP** participants
- Integration of tools (e.g. Argo/Netapp storage in jupyter)

# Available LMS

- Basically many LMSs exist but for this presentation, we would only consider the two main LMSs deployed locally at the ICTP
  - **Moodle**
  - **OpenEDX**
  - *Google Classroom (also available via Google Apps)*



# Moodle

- On-line Learning philosophy
- ICTP @ <https://moodle.ictp.it>
  - ICTP Account holders
  - Non-ictp accounts holders can create an account
  - Several groups already have staff representatives with ability to
    - Create & manage courses and assign faculty as instructors/tutors
  - Broad range of plugins covering many things: computer aided grading, automatic plagiarism checks, etc.

# Moodle

[Click here](#)  
[for VIDEO](#)

# OpenEDX

- Massive Open Online Course (MOOC) philosophy
- ICTP
  - Learner interface @ <https://openedx.ictp.it/>
    - ICTP Account holders
    - Non-ictp accounts holders can create an account
  - Faculty interface @ <https://studio.ictp.it/signin>
    - Request promotion to faculty/staff if needed
    - Limited plugins and extensions

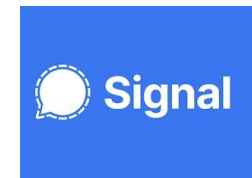


# OpenEDX

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# Communication Tools

Wide variety of synchronous communication tools



Hosted at ICTP: Matrix, Nextcloud Talk

# Collaboration Tools

- Collaborative tools for on-line data manipulation
  - Jupyter
  - Cocalc
- Collaborative tools for on-line writing
  - Fiduswriter
  - SwiftLaTeX
- Collaborative tools for off-line use
  - Dbox
  - Others (not hosted at ICTP)

# Jupyter

- Works with ICTP username and password
- GUI, buttons, cells, ordered way to run code, comment the work, and present results
- Collaborative data analysis and training
  - Access to OWN ARGO folders
  - Common project folder with another ICTP user
  - Supervising /running a class
  - Available upon request

# Jupyter

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[for VIDEO](#)

# Cocalc

- Initial Login with ICTP credentials required to access, followed by signup process.
- Supports R, Python, Sage
- Collaboration models
  - Between ICTP account holders
  - With external users available on demand

# Cocalc

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# Fiduswriter

- WYSIWYG document writing platform:
  - Manage bibliographies
  - Write mathematical formulas
  - Export to several formats such as LaTeX, Word, HTML, etc..
- Login access required to use (additional signup required)
- Collaboration models
  - Between ICTP account holders
  - With external users available on demand



# Fiduswriter

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# SwiftLaTeX

- Login access required to use (no automatic signup for non-ictp account holders)
- Collaboration models
  - Between ICTP account holders
    - Use special naming convention **ictp:*username*:Title of Project**
    - Large groups
  - Non-ictp account holders
    - *Independent dedicated swiftatex accounts can be created on demand*

# SwiftLaTeX

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[for VIDEO](#)

# Dbox

*(powered by Nextcloud)*

- Prior Webinars focused on sharing & video-conferencing: See <https://icts.ictp.it/webinars/>
- Secure in-house facility immediately available to all ICTP account holders
- Fully supported collaborative editing of many different document formats: (Word, PPT, Excel, Text, Whiteboard, mind-map, etc),
  - Share/work with any ICTP account holder and also **non-ictp account holders** (*access can be protected by passwords as well*).

# Other Tools

- Collaborative editing of standard document formats (Word, PPT, Excel):
  - Google Drive, Microsoft Office 365, etc.
- Whiteboards
  - <https://whiteboard.fi/>
  - <https://whiteboardfox.com/>

# Notes

- **Microlearning:** shorter lessons in bits
- **Interaction / Engagement**
- **Tips for online teaching:**  
<https://www.youtube.com/watch?v=VxY22IhbaH4>
- **Time spent for preparation pays off later**
- **Be curious, try the different tools...**

# Quick reference

Tool	ICTP	Alternatives (Public & Commercial)
MOODLE	<a href="https://moodle.ictp.it/">https://moodle.ictp.it/</a>	Many institutions, <a href="https://www.moodle.com">https://www.moodle.com</a>
OpenEDX	<a href="https://openedx.ictp.it">https://openedx.ictp.it</a> <a href="https://studio.ictp.it/">https://studio.ictp.it/</a>	<a href="https://www.edx.org">https://www.edx.org</a>
JupyterHUB	<a href="https://jupyter.ictp.it/">https://jupyter.ictp.it/</a>	
Cocalc	<a href="https://cocalc.ictp.it/">https://cocalc.ictp.it/</a>	<a href="https://cocalc.com">https://cocalc.com</a>
FidusWriter	<a href="https://fiduswriter.ictp.it/">https://fiduswriter.ictp.it/</a>	<a href="https://www.fiduswriter.org">https://www.fiduswriter.org</a> , <a href="https://www.overleaf.com">https://www.overleaf.com</a>
SwiftLaTeX	<a href="https://swiftlatex.ictp.it/">https://swiftlatex.ictp.it/</a>	<a href="https://www.swiftlatex.com">https://www.swiftlatex.com</a> , <a href="https://www.overleaf.com">https://www.overleaf.com</a>
Matrix	<a href="https://matrix.ictp.it/">https://matrix.ictp.it/</a>	Slack, Matrix, element.io

# Credits

- **Mary-Jane Sule**
- **Maria Verina**
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- **Herbert Nguruwe**
- **Marco Zorzini**
- **Clement Onime**