

E-Latin american digital huB for OpeN Growing cOmmunities in physics

# Herramientas de colaboración (MiLab)

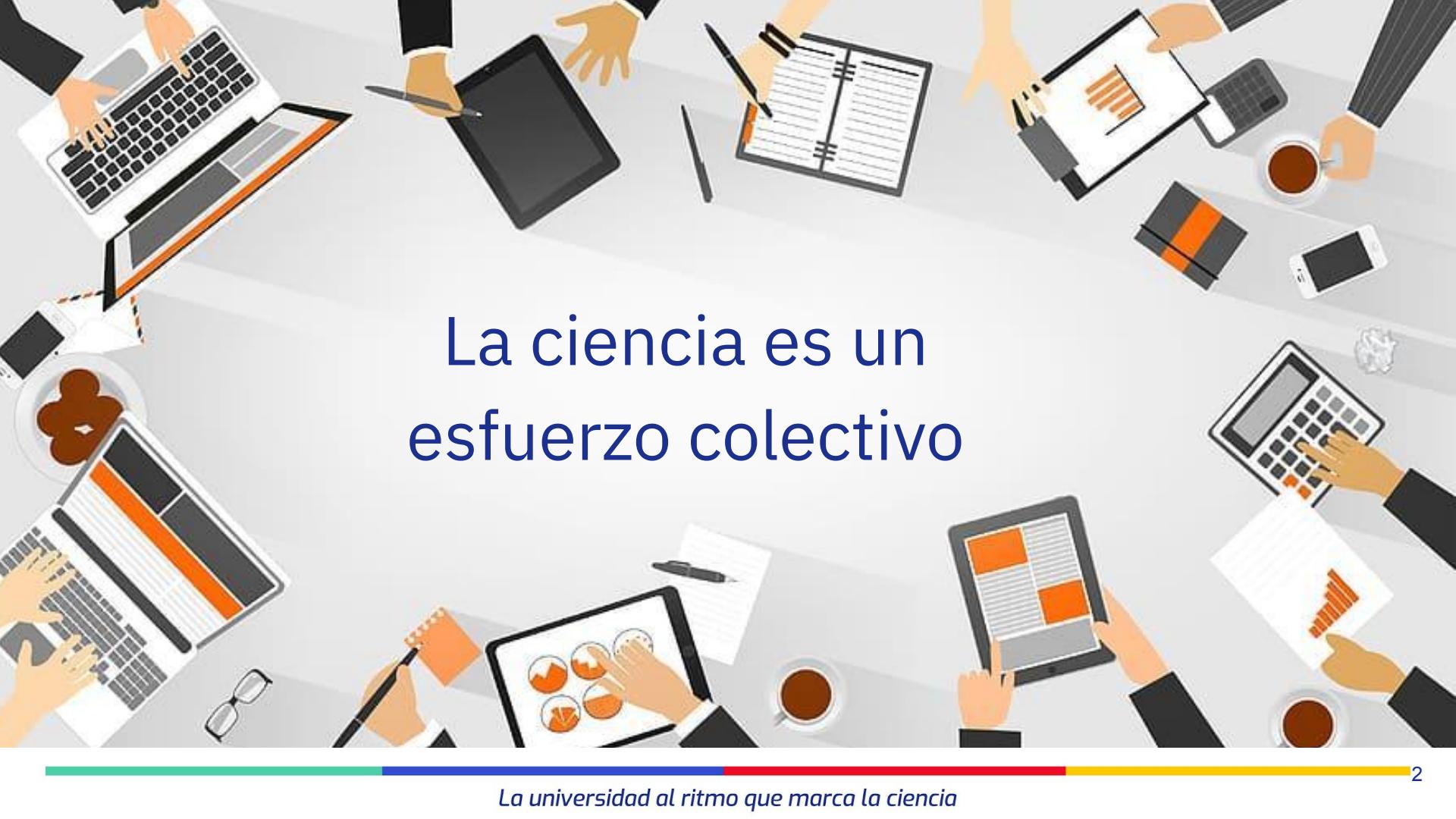
Por Alexander Martinez Mendez



Co-funded by  
the European Union

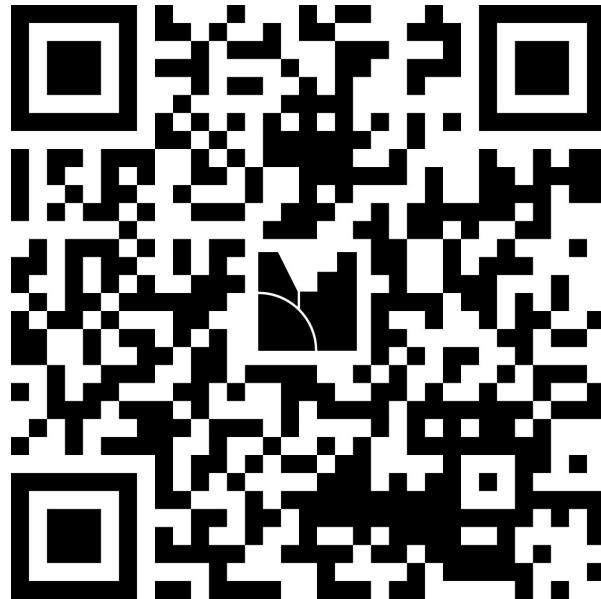
*La universidad al ritmo que marca la ciencia*

[www.elbongo.redclara.net](http://www.elbongo.redclara.net)



La ciencia es un  
esfuerzo colectivo

[https://www.menti.com  
/alruocejcrqt](https://www.menti.com/alruocejcrqt)

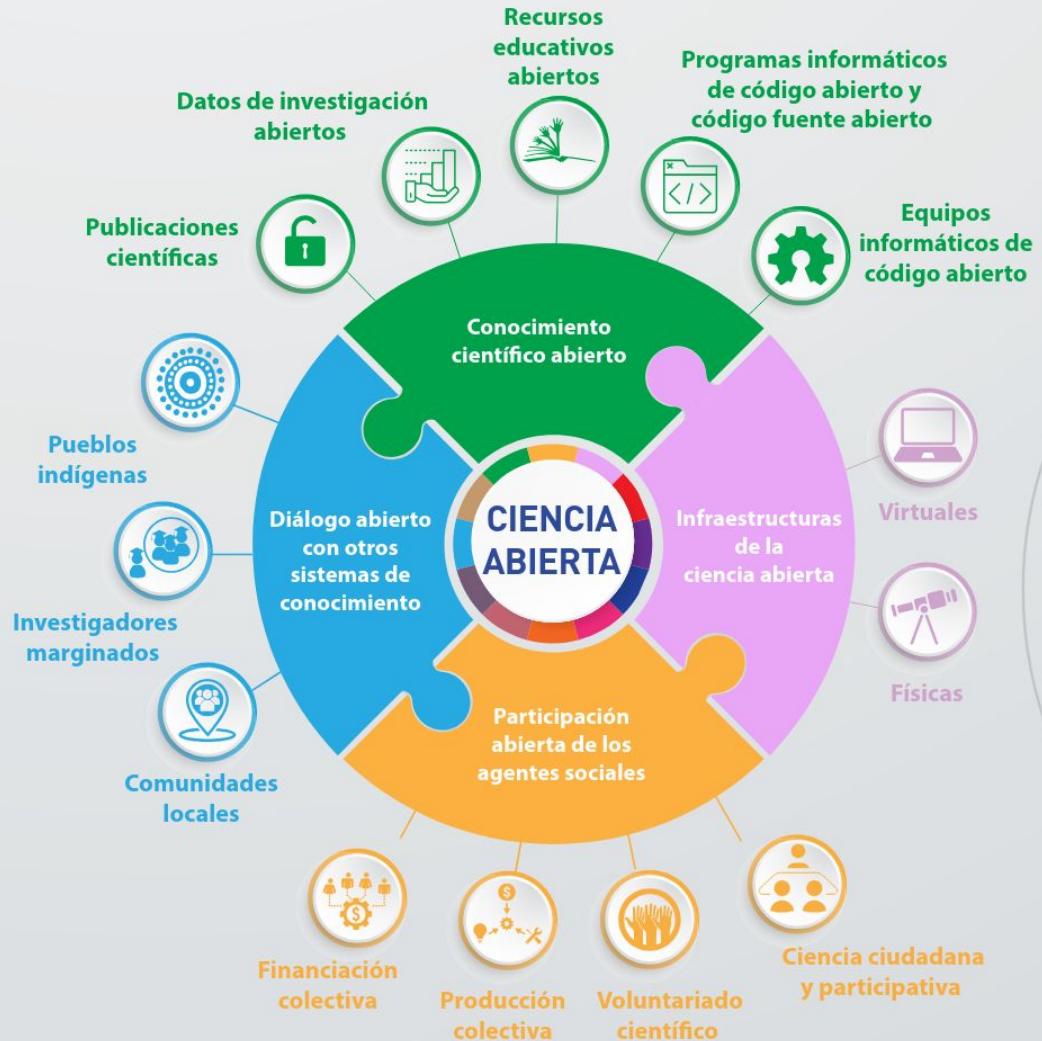


# La importancia de la colaboración

<<Ningún avance surge de manera aislada>>

Sin embargo, tenemos retos comunes:

- Dificultad de uso de recursos de cómputo avanzados.
- Comunicación dispersa en correos y chats informales.
- Pérdida de versiones de código y datos.
- Dificultad para organizar eventos y actividades.
- Escasa visibilidad de su trabajo hacia la comunidad científica y el público.

**VALORES**

Calidad e integridad

Beneficio colectivo

Equidad y justicia

Diversidad e inclusión

**CIENCIA ABIERTA**

**PRINCIPIOS**

Transparencia, control, crítica y reproducibilidad

Igualdad de oportunidades

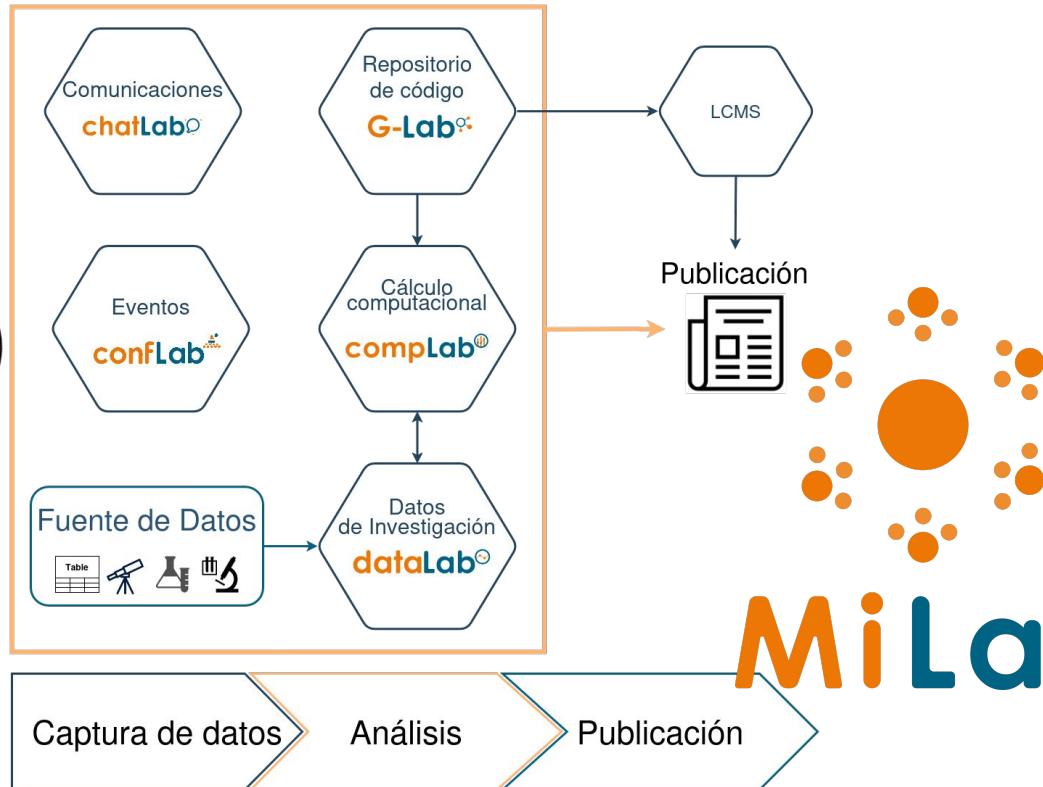
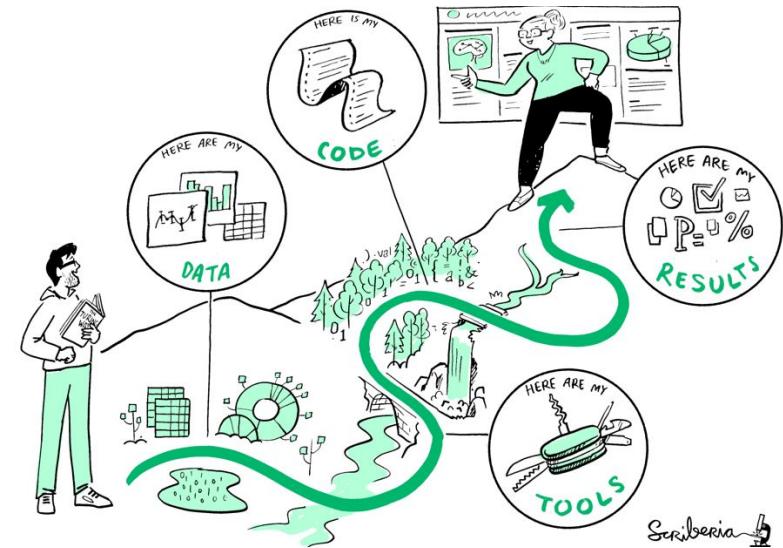
Responsabilidad, respeto y rendición de cuentas

Colaboración, participación e inclusión

Flexibilidad

Sostenibilidad

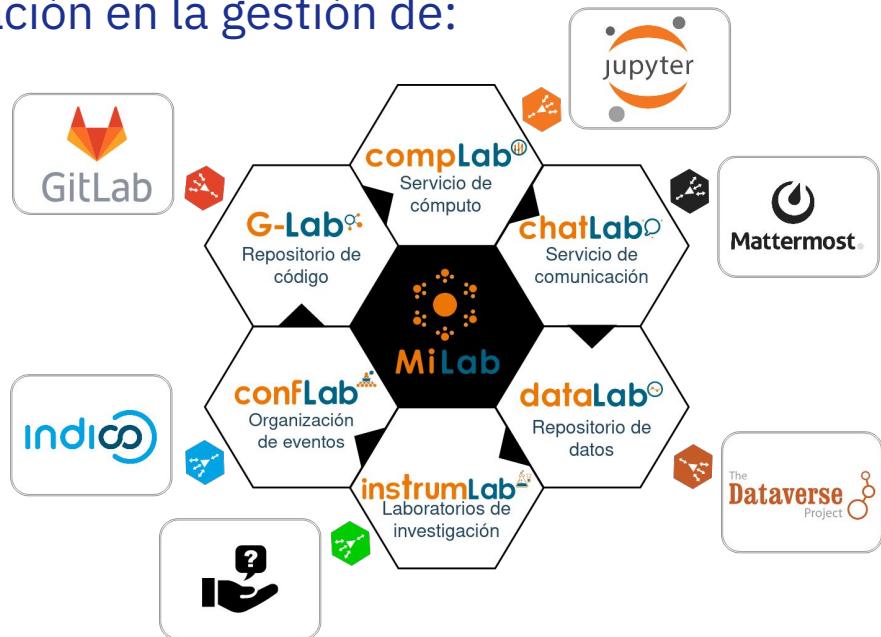
# Una plataforma para la reproducibilidad



# MiLab

Plataforma como servicio en la nube para apoyar el trabajo de pequeños/medianos grupos de investigación en la gestión de:

- Datos de investigación
- Códigos computacionales
- Entornos de cómputo
- Comunicación
- Eventos académicos
- Visibilidad web

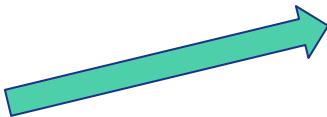


# Servicios MiLab

# Gestión de comunicaciones



Una plataforma para la comunicación y preservación de la historia de los grupos de investigación.



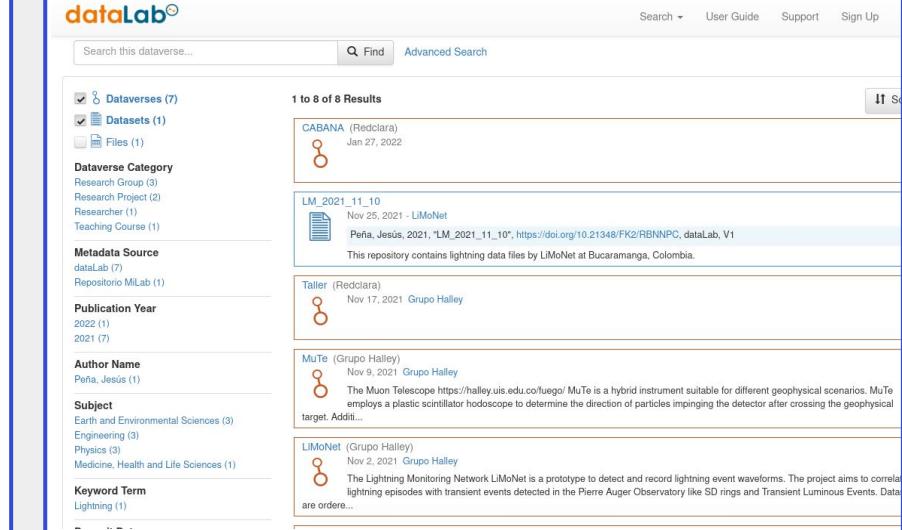
The screenshot shows the Mattermost interface. On the left, there's a sidebar with a search bar, a user profile for 'EL-BONGO', and sections for 'FAVORITES' (WP2 FABLabs, WP2 Science Gateway) and 'CHANNELS' (General, Representantes Institucionales..., Fuerza de Tópico). Below these are 'DIRECT MESSAGES' from System, gabynavarro, and Rafael Martínez. The main area shows a message from 'System' at 16:12 (@Daniela González B. joined the team.) followed by a message from 'System' at 22:15 (@melimcruz joined the team.). A message from Daniela González B. at 09:40 says 'Buenos días, espero que estén muy bien.' Below it, a note says 'A propósito de la reunión del lunes me permito compartir una sugerencia de agenda:' followed by a numbered list: 1. Informe sobre la reunión con nuestra Project Officer, 2. Revisión Partnership Agreement, 3. Revisión avances por WP, 4. Lista de equipos. A message at the bottom says 'Quedo atenta a los comentarios. 😊'. At the bottom of the interface is a text input field 'Write to General' with various rich text editing icons.

<https://mattermost.redclara.net/>

# Repositorio de datos



Una solución para la preservación, gestión y acceso seguro a los datos de investigación.

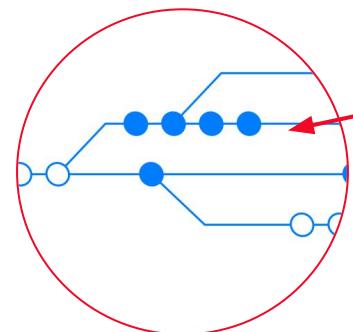


The screenshot shows the dataLab search interface. At the top, there is a search bar with the placeholder "Search this dataverse...", a "Find" button, and a "Advanced Search" link. To the right of the search bar are links for "User Guide", "Support", and "Sign Up". Below the search bar, there are three checked filter options: "Dataverses (7)", "Datasets (1)", and "Files (1)". On the left side, there is a sidebar with several filters: "Dataverse Category" (Research Group (3), Research Project (2), Researcher (1), Teaching Course (1)), "Metadata Source" (dataLab (7), Repositorio MiLab (1)), "Publication Year" (2022 (1), 2021 (7)), "Author Name" (Peña, Jesús (1)), "Subject" (Earth and Environmental Sciences (3), Engineering (3), Physics (3), Medicine, Health and Life Sciences (1)), and "Keyword Term" (Lightning (1)). The main content area displays "1 to 8 of 8 Results". The first result is "CABANA (Redclara)" from Jan 27, 2022. The second result is "LM\_2021\_11\_10" from Nov 25, 2021, by Peña, Jesús, which is described as a lightning data file from LiMoNet at Bucaramanga, Colombia. The third result is "Taller (Redclara)" from Nov 17, 2021, by Grupo Halley. The fourth result is "MuTe (Grupo Halley)" from Nov 9, 2021, by Grupo Halley, which is described as a hybrid instrument for geophysical scenarios. The fifth result is "LiMoNet (Grupo Halley)" from Nov 2, 2021, by Grupo Halley, which is described as a prototype for lightning event waveform detection and correlation with transient events in the Pierre Auger Observatory.

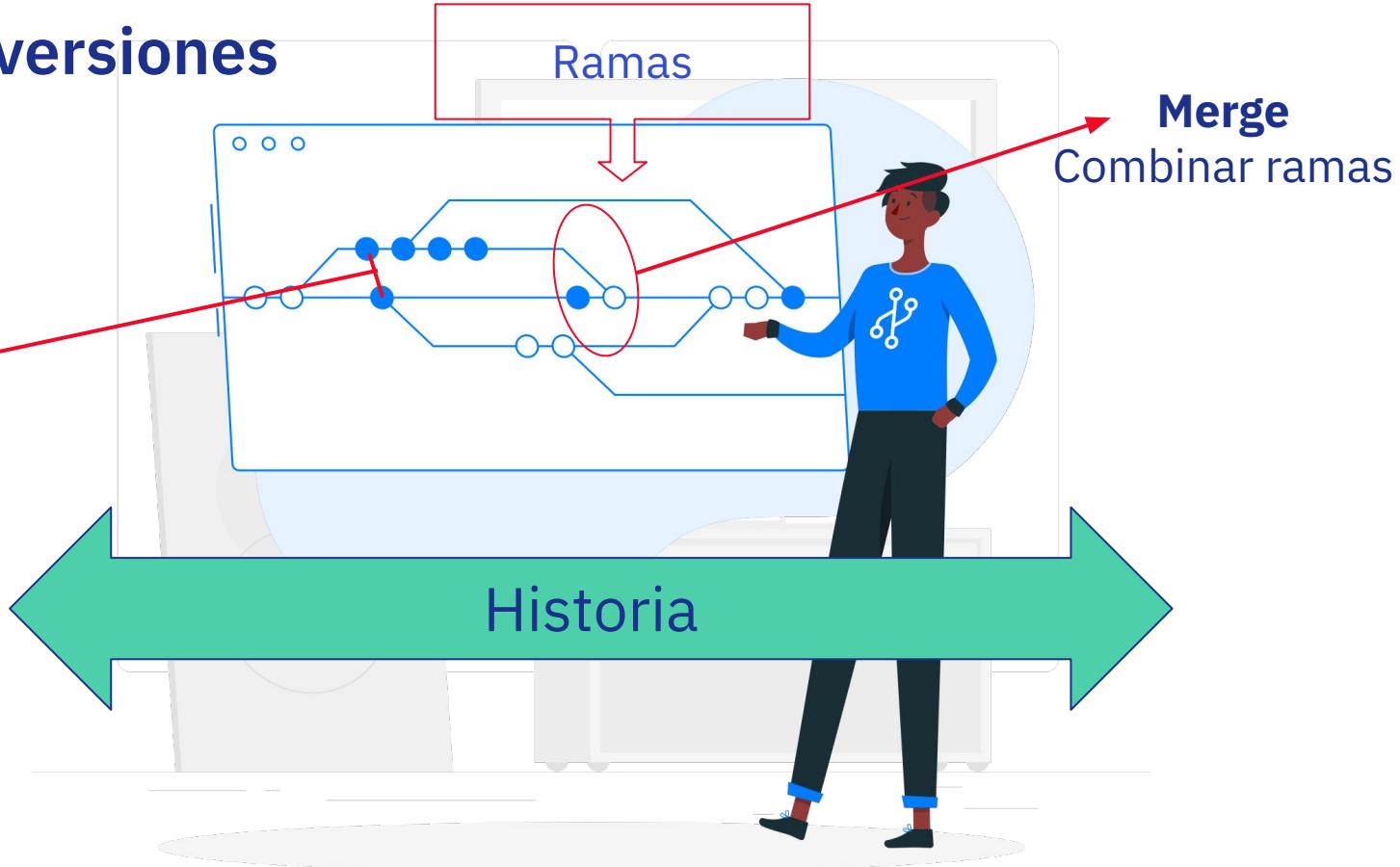
<https://dataverse.redclara.net/>

# Control de versiones

## CVS



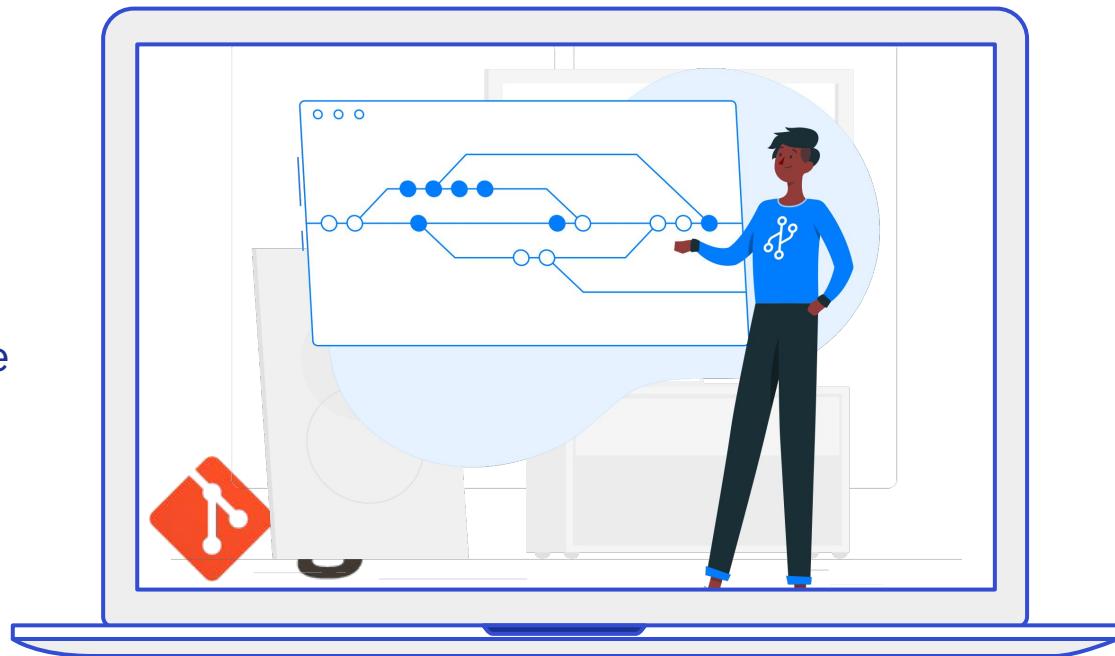
**Commits**  
Registros para la historia



# Repositorio de código



Un servicio web de **control de versiones** y desarrollo de software colaborativo basado en **Git**



<https://gitmilab.redclara.net/>

# Cálculo computacional



*“Jupyter existe para desarrollar software de código abierto, estándares abiertos y servicios para la informática interactiva en docenas de lenguajes de programación.”*

A screenshot of a Jupyter Notebook interface running on a tablet. The left sidebar shows a file tree with notebooks like Lorenz.ipynb, Data.ipynb, and lorenz.py. The main area displays a 3D plot of the Lorenz attractor. The code cell contains Python code for generating the plot, and the output cell shows the resulting 3D surface.

<https://jupyter.redclara.net/>

# Cálculo computacional

compLab<sup>®</sup>



1



2



3

The screenshot shows a JupyterHub interface with several tabs open:

- Lorenz.ipynb**: A notebook containing the Lorenz differential equations:
$$\begin{aligned}\dot{x} &= \sigma(y - x) \\ \dot{y} &= \rho x - y - xz \\ \dot{z} &= -\beta z + xy\end{aligned}$$
- Terminal 1**: Shows the command `from lorenz import solve_lorenz`.
- Console 1**: Shows the command `interactive(solve_lorenz, sigma=(0.0,50.0), rho=(0.0,50.0))`.
- Data.ipynb**: A notebook tab.
- README**: A file tab.

The **Output View** displays sliders for parameters `sigma`, `beta`, and `rho`, with current values of 10.00, 2.67, and 28.00 respectively. To the right is a 3D plot of the Lorenz attractor.

**lorenz.py**: A Python script defining the Lorenz system and its derivatives:

```
def solve_lorenz(sigma=10.0, beta=8./3, rho=28.0):
    """Plot a solution to the Lorenz differential equations."""
    fig = plt.figure()
    ax = fig.add_axes([0, 0, 1, 1], projection='3d')
    ax.axis('off')

    # prepare the axes limits
    ax.set_xlim((-25, 25))
    ax.set_ylim((-35, 35))
    ax.set_zlim(5, 55)

    def lorenz_deriv(x_y_z, t0, sigma=sigma, beta=beta, rho=rho):
        """Compute the time-derivative of a Lorenz system."""
        x, y, z = x_y_z
        return [sigma * (y - x), x * (rho - z) - y, x * y - beta * z]

    # Choose random starting points, uniformly distributed from -15 to 30
    np.random.seed(1)
    x0 = -15 + 30 * np.random.random((N, 3))

    t = np.linspace(0, 40, N)
```

# Gestión de eventos



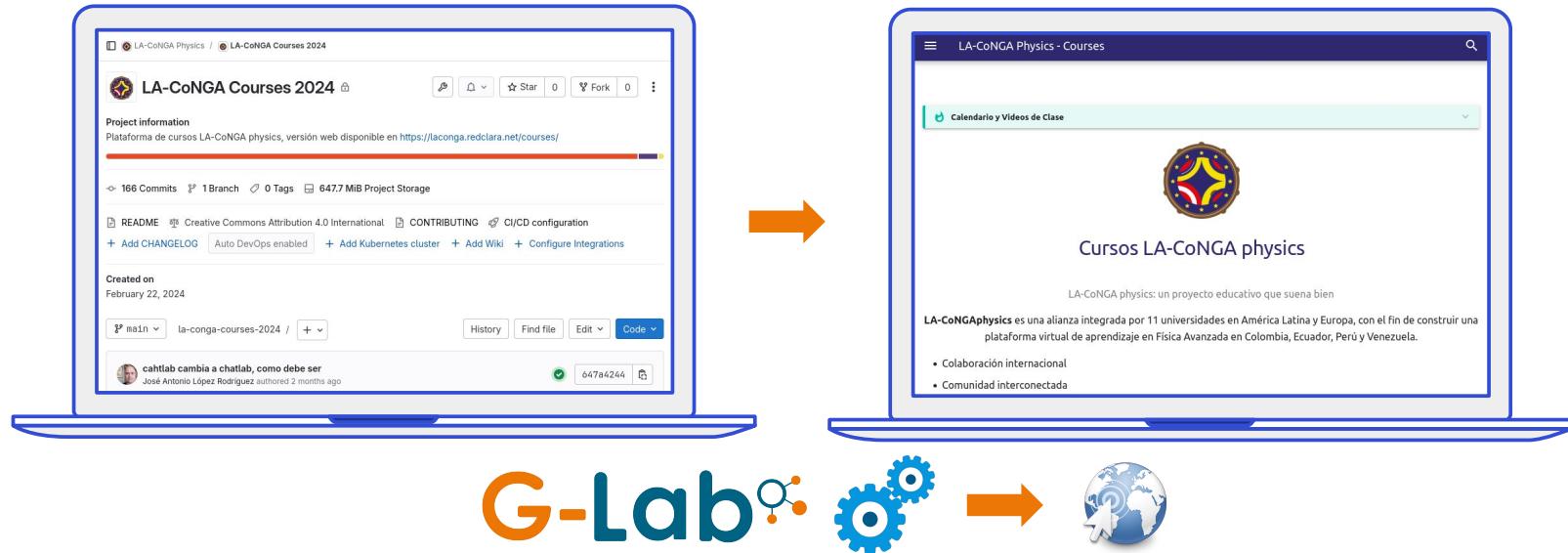
Un servicio para la gestión de eventos académicos\*, facilitando la organización y participación en reuniones, conferencias y seminarios.

A screenshot of the Indico web interface. At the top, there's a navigation bar with "Public", "America/Bogota", and "A. Martinez". Below it, a breadcrumb trail shows "Home > Ciencias Naturales > EL-BONGO physics". The main title "EL-BONGO physics" is displayed prominently. A search bar says "Enter your search term" with a magnifying glass icon. A "Create event" button is visible. To the right, there are sections for "Managers" (with two entries), "Materials" (empty), and a note "There are no materials yet.". On the left, a sidebar lists "Eventos asociados con EL-BONGO physics" with a message "There are 35 events in the future. Show". Below this, a calendar section for "March 2025" shows two events: "28 Mar Reunión management EL-BONGO NEW" and "21 Mar Reunión management EL-BONGO NEW".

Date	Event Name	Status
28 Mar	Reunión management EL-BONGO	NEW
21 Mar	Reunión management EL-BONGO	NEW

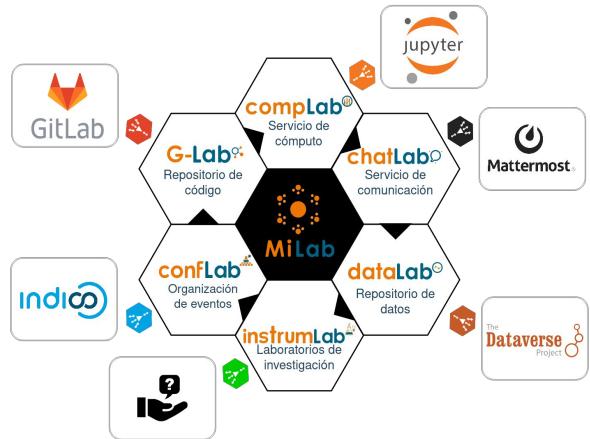
<https://jupyterhd.redclara.net/>

# Visibilidad web



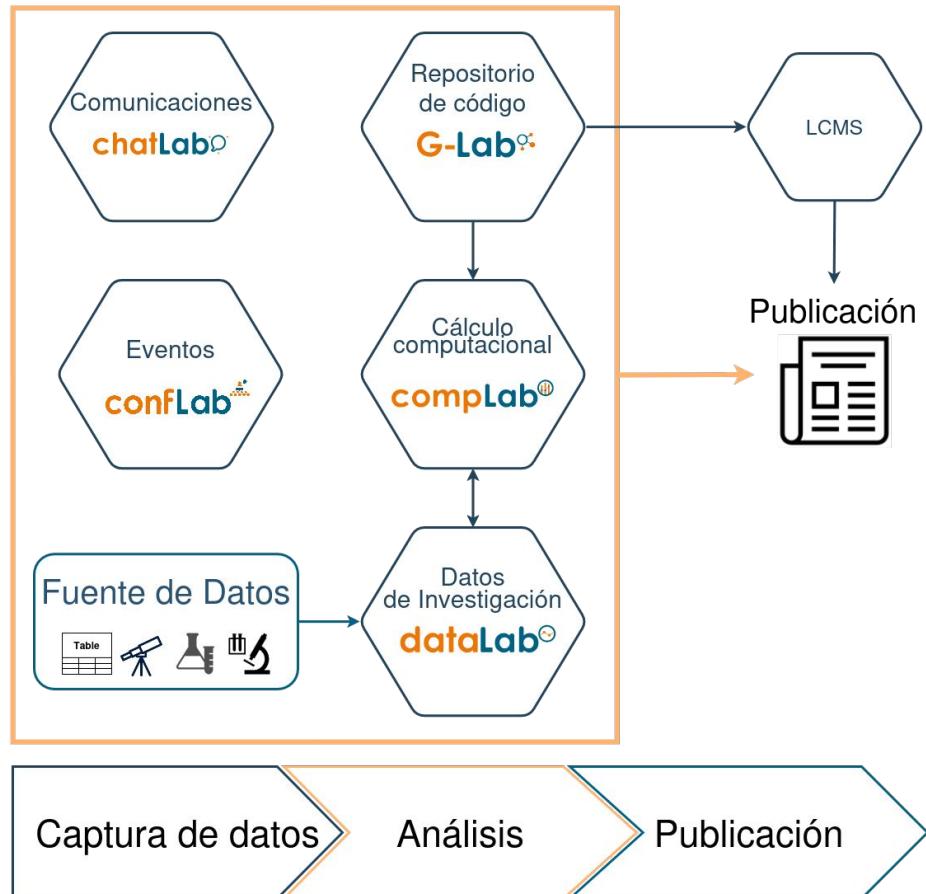
Mecanismos <<CI/CD>> para el despliegue de aplicaciones web

# Resumen



Milab es un ecosistema colaborativo que impulsa:

- Mayor eficiencia en la gestión del trabajo.
- Transparencia y trazabilidad de los resultados.
- Mayor impacto científico y académico gracias a la visibilidad.



# Manos a la obra...

<https://gitmilab.redclara.net>

# Gracias...

- <https://mxrtinez.github.io/>
- [info@milab.redclara.net](mailto:info@milab.redclara.net)

