Sesión informativa UNE – 6 de junio de 2022

Diseño de laboratorios

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La propuesta en ISO

Circulation date 2020-07-04 **Closing date for voting** 2020-09-26	**Reference number:** Enter Number (to be given by ISO Central Secretariat)
Proposer SAC	**ISO/TS/P** 290

Note: the proposed TC will help laboratory design industry to address a wide range of global issues. Outbreaks of zoonotic disease like Avian Influenza (H5N1), Middle East Respiratory Syndrome (MERS), Ebola virus, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and Coronavirus (COVID-19) has highlighted the worldwide lack of adequate laboratory capacity, especially in low-resource environments. This proposal should address this situation, early during the design stage, by providing a standardised approach on laboratory function, health and safety, energy efficiency, environmental impact and regulatory compliance issues.

Scope statement of the proposed new committee (The scope shall precisely define the limits of the field of activity. Scopes shall not repeat general aims and principles governing the work of the organization but shall indicate the specific area concerned).

Standardization in the field of laboratory design including site selection, design of internal layout of space and services with the objective to provide functional, safe, energy efficient and sustainable laboratories taking into account environmental impact, the practical division of experimental and support areas and layouts plus model selection of laboratory furniture.

It includes standardization of apparatus and devices for personal safety aspects that are an integral part of the laboratory. Design of devices and apparatus for experiment purposes covered by ISO/TC 48 as well as design of measuring instruments are excluded from the scope.

Excluded:

- ISO/TC 48 (laboratory equipment);
- ISO/TC 212 (Clinical laboratory testing and in vitro diagnostic test systems);
- CASCO;
- IEC/TC 66 (Safety of measuring, control and laboratory equipment);
- ISO/TC 209 (Clean rooms).

La propuesta en ISO

Proposed initial programme of work. (The proposed programme of work shall correspond to and clearly reflect the aims of the standardization activities and shall, therefore, show the relationship between the subject proposed. Each item on the programme of work shall be defined by both the subject aspect(s) to be standardized (for products, for example, the items would be the types of products, characteristics, other requirements, data to be supplied, test methods, etc.). Supplementary justification may be combined with particular items in the programme of work. The proposed programme of work shall also suggest priorities and target dates.)

The new TC will stipulate technical design requirements for a diverse range of laboratories with different functions and responsibilities. It will include, but not limited to:

1. site selection and planning;
2. layouts and selection of model furniture (e.g. workbenches, fume hoods, safety showers, biological safety cabinets, etc);
3. electrical, water and gas supply systems, drainage, fire prevention, HVAC, auto-control and decoration;
4. laboratories featuring bio-safety, constant temperature and humidity, and other special laboratories;
5. laboratory safety, staff health and wellness, environmental protection, and energy saving;
6. Smart laboratory (Use of big data, cloud computing, Internet of things, blockchain, artificial intelligence and other digital technologies to monitor and control the environmental conditions of the laboratory, so as to have better performance operation of facilities, energy conservation, environmental protection and personnel health).

Initial Work Programme over 3 to 5 years will develop and prepare common design requirements for different types of laboratories and submit international standards (IS): “General Specification of Technical Requirements for Laboratory Design” and “Technical Requirements for Smart Laboratory Design”.

The programme will:

a. build the framework for drafting “General Specification of Technical Requirements for Laboratory Design”;
b. classify laboratory types and define terminology;
c. clarify the principles of laboratory design requirements for various disciplines and acceptance requirements of laboratory functions;
d. clarify the technical design requirements for laboratories utilizing digital technologies for environmental control;
e. prepare IS “General Specification of Technical Requirements for Laboratory Design”;
f. prepare IS “Technical Requirements for Smart Laboratory Design”.

Based on categorization of laboratory types and framework of the “Technical Requirements of Laboratory Design”, future Work Programme over a period of 3 to 5 years will develop the technical requirements for design of various types of laboratories, e.g. vaccines development and manufacture, pharmaceutical, food and agricultural product, petrochemical, police etc.

PARTICIPATING MEMBERS (15)

COUNTRY/TERRITORY	ACRONYM
Australia	SA
Brazil	ABNT
China	SAC
Finland	SFS
France	AFNOR
Germany	DIN
India	BIS
Israel	SII
Italy	UNI
Korea, Republic of	KATS
Nepal	NBSM
Netherlands	NEN
Switzerland	SNV
Trinidad and Tobago	TTBS
Uganda	UNBS

OBSERVING MEMBERS (19)

COUNTRY/TERRITORY	ACRONYM
Argentina	IRAM
Austria	ASI
Colombia	ICONTEC
Côte d'Ivoire	CODINORM
Czech Republic	UNMZ
Denmark	DS
Iran, Islamic Republic of	INSO
Japan	JISC
New Zealand	NZSO
Panama	DGNTI
Russian Federation	GOST R
Rwanda	RSB
Singapore	SSC
Slovakia	UNMS SR
South Africa	SABS
Spain	UNE
Sweden	SIS
United Kingdom	BSI
United States	ANSI

Primera reunión del comité ISO

1. Opening of the meeting : 2021-11-18 (13:00 GMT)
2. Roll call of delegates
3. Work environment: Presentation on the Code of Conduct Direct link to Code of Conduct
4. Adoption of the agenda Doc. ISO/TC 336 N001
5. Appointment of the drafting committee
6. Introduction of the ISO officer/s
7. Context, review and confirmation of the scope of ISO/TC 336 Doc. ISO/TC 336 N002, N003
8. Establishment of liaisons 9. Doc. ISO/TC 336 N004
10. Discussion on future work
11. Any other business
12. Approval of resolutions
13. Date and place for the next meeting
14. Closure of the meeting : 2021-11-18 (15:00 GMT)

2ª reunión

1. Opening of the meeting : 2022-04-26 (11:00 GMT)
2. Roll call of delegates
3. Work environment: Presentation on the Code of Conduct Direct link to Code of Conduct
4. Adoption of the agenda Doc. ISO/TC 336 N015
5. Appointment of the drafting committee
6. Scope of ISO/TC 336 Review of comments received on CIB ballot - Doc. ISO/TC 336 N014 and N 0XX (to be circulated)
7. Business plan of ISO/TC 336 - Doc. ISO/TC 336 N0XX (to be circulated)
8. Potential new work on laboratory design process
9. Any other business
10. Approval of resolutions
11. Date and place for the next meeting
12. Closure of the meeting : 2021-11-18 (15:00 GMT)

Alcance revisado

Standardization in the field of laboratory design including site selection, design of space and integration of services with the objective to provide functional, safe, energy efficient and sustainable laboratories considering the health and wellbeing of laboratory users, environmental impact, the practical division of experimental and support areas and layouts plus model selection of integrated laboratory equipment.

It includes standardization of apparatus and devices for personnel safety, health, environmental protection, and energy saving that are an integral part of the laboratory.

Standardization of devices and furniture for laboratory purposes, with respect to principles of construction, performance, dimensions and testing are covered by ISO/TC 48 and are excluded from the scope of ISO/TC 336.

Excluded:

- ISO/TC 48 (laboratory equipment);
- ISO/TC 212 (Clinical laboratory testing and in vitro diagnostic test systems);
- CASCO;
- IEC/TC 66 (Safety of measuring control and laboratory equipment);
- ISO/TC 209 (Clean rooms).

Propuesta de *business plan*

International Organization for Standardization
Organisation internationale de normalisation
Международная организация по стандартизации

STRATEGIC BUSINESS PLAN – ISO/TC 336

Executive summary

1. Laboratories impact all sectors of the economy and are essential for operational and R & D activities in many sectors including pharmaceuticals, agriculture, food, medicine, energy production and law enforcement but there are no recognised international standards on any major aspect of Laboratory Design.
2. Purpose of setting up ISO/TC 336: Laboratory Design:
   a) to provide unified global standards for laboratory design;
   b) embed Environment, Health and Safety (EHS) in the design process to construct laboratories that are cost and energy efficient with minimal environmental impact and provide high standards for the health, wellness and safety of laboratory workers;
   c) ensure flexibility by designing modular & prefabricated laboratories that adjust to changing demands and can be disassembled at the end of their useful life and the material reused or recycled.
3. ISO/TC 336 stakeholders include laboratory owners (including governments, scientific agencies, universities and many industrial sectors) designers, constructors, users, operators and entire society.
4. Worldwide potential benefits from ISO/TC 336: Laboratory Design are massive. For example, life science industry in California (USA) supported over 1.4 million jobs generating USD 372 billion in 2019[1] and clinical laboratories in USA contributed over USD 106 billion in total economic output, supporting over 688,000 jobs, generating USD 44 billion in wages and paying more than USD 14 billion in state and federal taxes[2]. (WE NEED VERIFIABLE REFERENCES FROM OTHER COUNTRIES/REGIONS)
5. ISO/TC 336 will postulate a globally agreed definition of Laboratory Design as applied to the practices, activities and products for the laboratory design and construction sector, and interpretation of what constitutes good Laboratory Design practice.
6. A large number of voluntary and regulatory laboratory design guidelines and standards are being developed by various countries, regions and sectors but few are applicable to the whole sector. They could benefit international standards development and ISO/TC 336 shall seek to utilise them to accelerate development of globally agreed laboratory design standards.
7. ISO/TC 336 aims to consolidate innovations in Laboratory Design and empower countries to deliver the UN sustainable development goals at a faster pace, lower cost, reduced risk and address climate change in support of the ISO London Declaration.
8. ISO/TC 336 shall convene experts from across the laboratory design and construction community and include extensive internal and external liaisons to take expertise in sustainability and other arenas into Laboratory Design in a way that can be incorporated into best practices.
9. ISO/TC 336 international standards development work program will encompass the following activities:
   a) Terminology and classification of laboratory design;
   b) Planning and designing laboratories;
   c) Safety and health standards for laboratory design;
   d) Energy saving and environmental protection standards for laboratory design;
   e) Digital laboratory design standard;
   f) Mobile laboratory design standard;
   g) Technical requirements for different kinds of laboratory design.

En voto hasta el 17 de junio

Business plan: Objetivos de desarrollo sostenible

International Stakeholders:
contribution to the UN Sustainable Development Goals (SDGs).

ISO/TC 336 should enable countries to address a wide range of global issues and reach the UN Sustainable Development Goals:

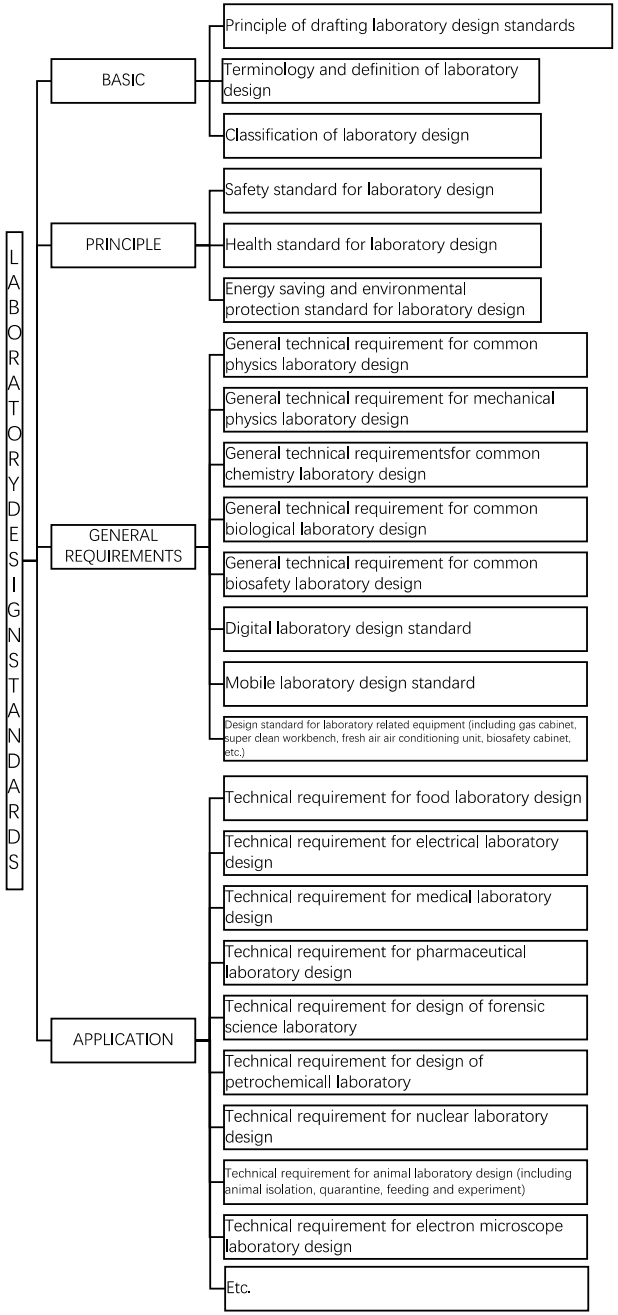
1: No Poverty
2: Zero Hunger
3: Good Health and Well-being
6: Clean Water and Sanitation
7: Affordable and Clean Energy
8: Decent Work and Economic Growth
13: Climate Action
17: Partnerships to achieve the Goal

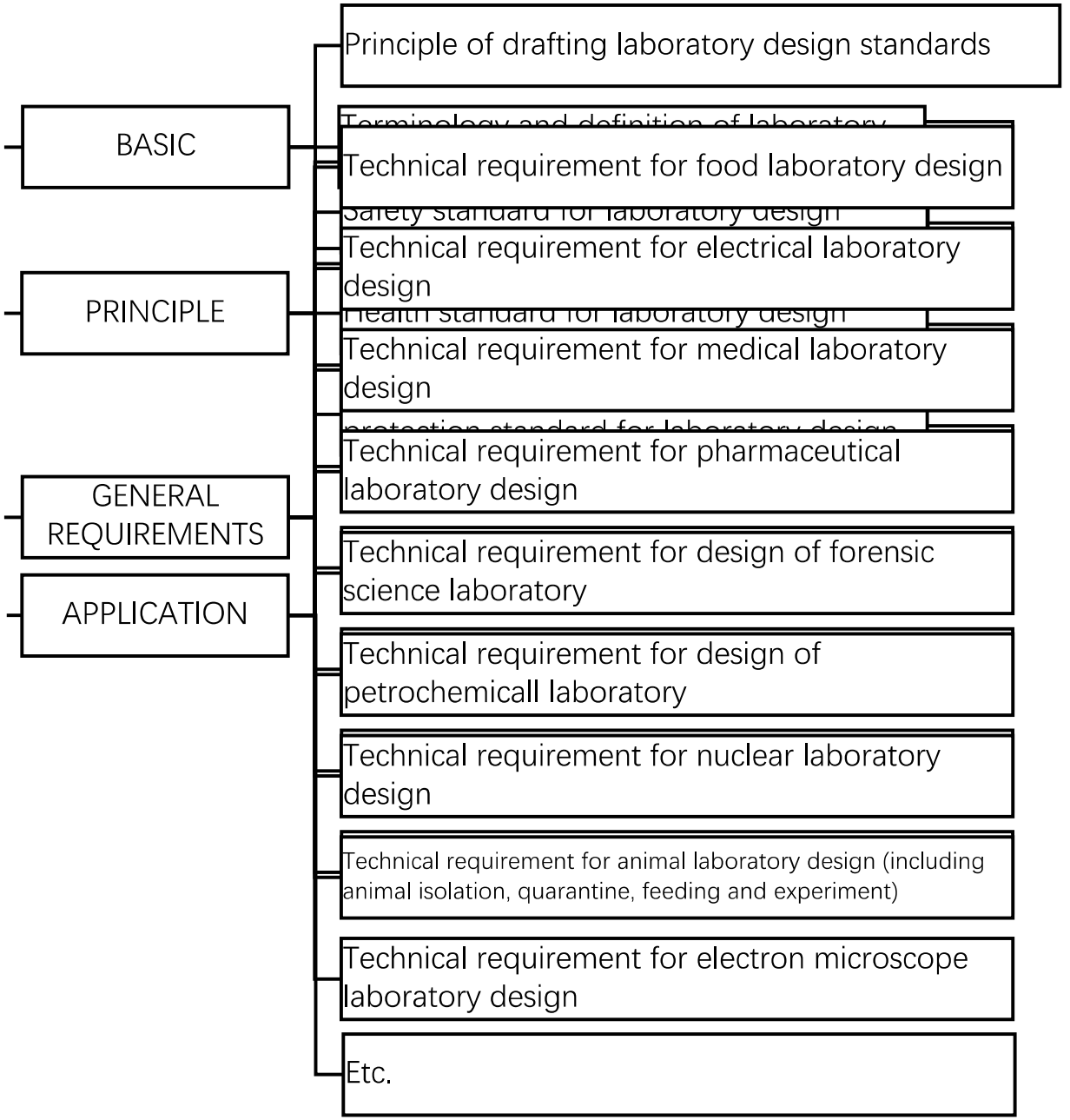
Business plan: Enfoque

ISO/TC 336 will provide a standardised approach on laboratory **health and safety, energy efficiency, environmental impact** and **regulatory compliance** issues at an early stage in the laboratory design process.

ISO/TC 336 shall formulate standards that:

- provide a common understanding of technical terminology used in the laboratory design process;
- create a framework and tools that embed Environment, Health and Safety (EHS) in the design process to construct laboratories that are cost and energy efficient with minimal environmental impact and provide high standards for the health, wellness and safety of laboratory workers;
- ensure flexibility by designing modular & prefabricated laboratories that adjust to changing demands and can be disassembled at the end of their useful life and the material reused or recycled;


LABORATORY DESIGN STANDARDS
BASIC
Principle of drafting laboratory design standards
Terminology and definition of laboratory design
Classification of laboratory design
PRINCIPLE
Safety standard for laboratory design
Health standard for laboratory design
Energy saving and environmental protection standard for laboratory design
GENERAL REQUIREMENTS
General technical requirement for common physics laboratory design
General technical requirement for mechanical physics laboratory design
General technical requirementsfor common chemistry laboratory design
General technical requirement for common biological laboratory design
General technical requirement for common biosafety laboratory design
Digital laboratory design standard
Mobile laboratory design standard
Design standard for laboratory related equipment (including gas cabinet, super clean workbench, fresh air air conditioning unit, biosafety cabinet, etc.)
APPLICATION
Technical requirement for food laboratory design
Technical requirement for electrical laboratory design
Technical requirement for medical laboratory design
Technical requirement for pharmaceutical laboratory design
Technical requirement for design of forensic science laboratory
Technical requirement for design of petrochemicall laboratory
Technical requirement for nuclear laboratory design
Technical requirement for animal laboratory design (including animal isolation, quarantine, feeding and experiment)
Technical requirement for electron microscope laboratory design
Etc.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PRINCIPLE
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Principle of drafting laboratory design standards
Technical requirement for food laboratory design
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Technical requirement for electron microscope laboratory design
Etc.

Propuesta de AFNOR: ISO Lab Design

Index

Propuesta 1 de SAC: Terminology and classification

The terminology and classification standard of laboratory design are the basic standards for the technical committee to formulate relevant standards, and they are of great significance as the guidance to the approval and classification of international standards for laboratory design. Thus it is urgently crucial for us to develop and publish this standard.

Propuesta 2 de SAC: Safety and health standards

Necessity

- Laboratories play an increasingly pivotal role in the modern society;
- Laboratory environment can be highly hazardous;
- health of laboratory staff caused by harmful substances are becoming increasingly noticeable;
- Lack of design safety & health concepts and standards is the root of such laboratory safety and health issues;
- Standards are the definitive solution to the problems.

Content

- The standard should stipulate the safety and health requirements of laboratory water supply, electricity, HVAC, waste management and other professional design, as well as the safety and health requirements of laboratory site selection, layout, and experiment-related areas. It is suitable for the design of new laboratory construction, renovation and expansion.

Propuesta 3 de SAC: Digital laboratory

Necessity

- Since digital technology is rebuilding the whole society, it can also empower laboratories to ensure safety and health in a low carbon way.

Content

- We can empower laboratories with digital technologies such as Internet of Things, Big Data, Cloud Computing, Blockchain, VR/AR, AI, etc. for the purpose of managing and allocating factors such as people, machines, materials, methods, and environment.

Próximas reuniones

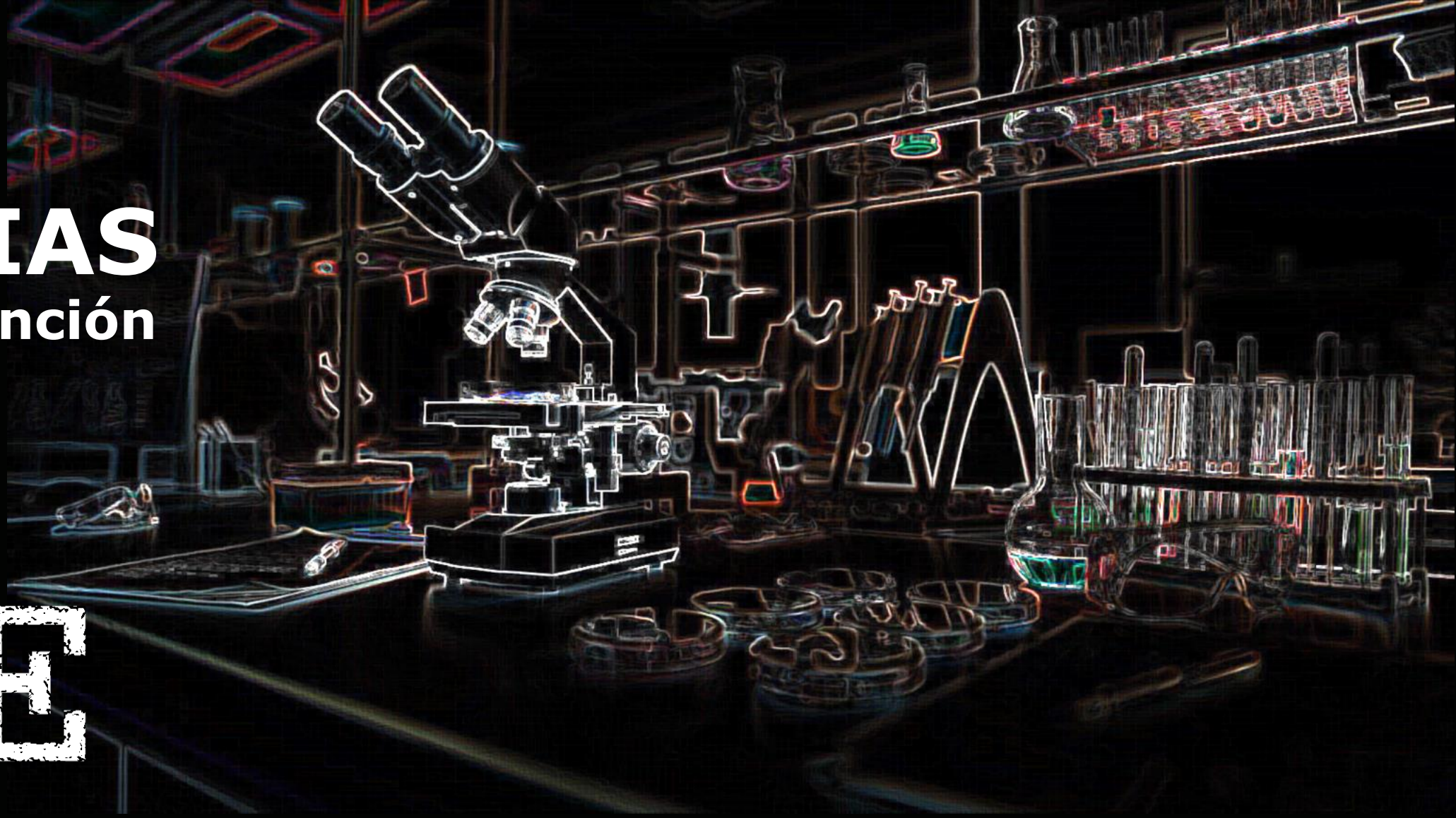
3ª reunión (*doodle*): entre el 15 de agosto y el 15 de septiembre

4ª reunión (*doodle*): entre el 1 de diciembre y el 15 de diciembre

¿Es interesante establecer un *mesa* nacional sobre diseño de laboratorios?

DEBATE

GRACIAS
por su atención



UNE

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… y, tras la reunión

- UNE circulará la documentación de la sesión y la información relativa a las condiciones de participación

- Manifestación del interés en participar
- Compromiso *tentativo* con la cuota correspondiente

- Traslado a los interesados de las condiciones definitivas y, si procede, puesta en marcha del órgano técnico