

FisMatEcol Boletín

Agosto 2023

Dr. Oliver López Corona
Dra. Elvia Ramírez Carrillo



Eventos

IX

CONGRESO NACIONAL

Paisajes antropizados
para la conservación
de la fauna nativa



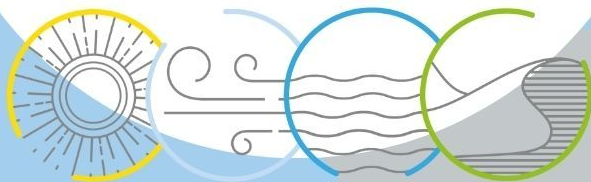
REFAMA
Estudiar
Conocer
Proponer
COEXISTIR

AVISO:



**SISTEMA DE REGISTRO DE
INSCRIPCIONES ABIERTO**

**INSCRÍBETE ANTES DEL 10 DE SEPTIEMBRE
Y OBTÉN UN PRECIO ESPECIAL**



Interacción de los sistemas terrestres

RAUGM 2023

Celebrando el 50 aniversario del CICESE

RAUGM.ORG.MX/PARTICIPANTES



35 Foro Nacional de Estadística



Instituto de
Matemáticas

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La **Asociación Mexicana de Estadística** tiene el agrado de convocar a estudiantes, investigadores y profesionales de la estadística y áreas afines al

35 Foro Nacional de Estadística

Del 27 al 29 de septiembre de 2023

Sede: Unidad Cuernavaca del Instituto de Matemáticas, UNAM



Te invitan al

SEGUNDO

CONGRESO INTERNACIONAL

"FRONTERAS DE LAS NEUROCIENCIAS"

¡ESPÉRALO
MUY PRONTO!

Del 27 al 29 de Septiembre

¡Evento Gratuito!

Registro a través de la página web:

<https://www.neurocienciasunam.com>



Evento impulsado por los proyectos: PAPIIME PE308423, PAPIIT IN216023, CONACYT 263577



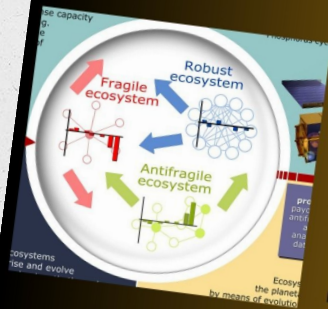


SEMINARIO DEL
DEPARTAMENTO
DE FÍSICA




**¿Qué nos puede decir la
física y las matemáticas
aplicadas sobre la salud
de los ecosistemas?**

Dr. Oliver López Corona
Ixm, IIMAS-UNAM



1 DE SEPTIEMBRE DE 2023,
12:00 HRS (GMT-6)

SALA DE PROYECCIONES
(CEF) DEL DEPARTAMENTO
DE FÍSICA, FACULTAD DE
CIENCIAS, UNAM

 Seminario del
Departamento de Física
Fac Ciencias UNAM

Oportunidades



¡Súmate al equipo!

Vacante
Subdirector de Conservación

Postúlate del
2 al 20 de agosto de 2023



Encuentra la convocatoria
en <https://bit.ly/empleoterra>
o escanea el código QR

Si tienes dudas sobre el puesto, envía un
correo a seleccion@terrapeninsular.org

Para conocer más sobre Terra Peninsular A.C., las personas
interesadas pueden visitar la página www.terrapeninsular.org
y seguir nuestras redes sociales en Facebook e Instagram.



FONDO MEXICANO
PARA LA CONSERVACIÓN
DE LA NATURALEZA, A.C.
INSTITUCIÓN PRIVADA

FMCN

¡TRES VACANTES!

Analista de Administración para
el proyecto CoSMoS

(Sede CDMX)

**Visita www.fmcn.org
para más información.**

Fecha límite para aplicar: 22 de agosto de 2023

Amanda Landa Romo



CORREDORAS

Graciela Gil-Romera
Penélope González Sampériz

(Stability and resilience of plant communities on long-term scales: assessing co-occurrence ecological networks from palaeoenvironmental records). An essential question in ecology is what mechanisms underpin the apparent stability of natural systems. Society needs such an answer to understand how ecosystems will react to current global change. In particular, research on ecosystem stability is increasingly focusing on how to measure and explain the coexistence of species in ecological communities. While research on ecological networks has emerged as a primary tool to address these goals, there's been little focus on long-term studies that might be useful to provide ecosystem management recommendations involving tracing the baseline conditions of ecosystem complexity prior to the impacts of current global change. CORREDORAS will pioneer the use of the palaeoecological records, using pollen, spores, charcoal, ancient DNA (sedaDNA) and complex molecule geochemistry from lacustrine archives to measure the properties of ecological networks and their changes under different disturbance regimes over the last 10 000 years in the central Pyrenees.



WE SEARCH

Candidates should preferably have a MSc in biology, environmental science or closely related discipline and must have some experience in at least one of the following:

- Molecular biology
- Plant ecology
- Quantitative ecology
- Bioinformatics

It is essential for the candidate to be a good team worker, both in the field and in the lab.

We will value, but it is not mandatory:

- Good communication skills, specially written English.
- Basic notions of R applied to ecological questions.



WE OFFER

- 4 year contract, fully insured in the Spanish welfare system. (Details on salary by email).
- All resources needed to pursue the proposed research, both gear/equipment as training in new fields.
- Excellent working atmosphere in the PaleolPE team (Quaternary Palaeoenvironment) of the Pyrenean Institute of Ecology-CSIC in Zaragoza (Spain).

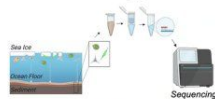


PALEO- IPE

The Quaternary palaeoenvironment group (PaleolPE) is a multidisciplinary team (geologists, biologists, geographers, environmentalists, archaeologists, historians).

We intend to make the best possible science in the best possible working environment. We try to foster team work, providing opportunities to all profiles in the team. We pay attention to diversity and equity and support the highest standards of open and transferable science.

PHD JOB OFFER



If you are interested, please send your queries, motivation and CV to:

Graciela Gil-Romera:
graciela.gil@ipe.csic.es

www.gilromera.com

[ORACIELA OIL](#)

[PALEO- IPE](#)

[PALEOPE CSIC](#)

[Where to find us](#)

Conceptos

Agua subterránea

SEMINARIO CUINZA
21 de octubre a las 16:00 horas

4^{to}
Coloquio
**sobre derechos humanos
y arreglos institucionales:**
La gobernanza del agua subterránea

OCTUBRE
Mes del agua y
políticas públicas

REGÍSTRATE
at.org.mx

Capas limitadas / Sin costo

MEDIO AMBIENTE
SECRETARÍA DE MEDIO AMBIENTE Y CLIMA

IMTA
INSTITUTO MEXICANO DE TRANSACCIONES AGUICOLAS

www.at.org.mx

Soil biodiversity



Unknome



PHYS.ORG

The 'unknome': A database of human genes we know almost nothing about

IS NUCLEAR POWER GREEN?



Cursos

MEMORIA DE LA ESCUELA

Escuela de primavera
en física y matemáticas
aplicadas a la ecología

VIRTUAL

Require pre-registro: <https://forms.gle/hBokNotfzKpSmPAYA>

Organiza: IIMAS, Fac de Psicología, IxM-CONACyT

Comité: Dr. Oliver López-Corona, Dra. Elvia Ramírez-Carrillo, Dr. Pablo Padilla

Sitio web: <https://www.lopezoliver.otrasenda.org/fismatecol/>



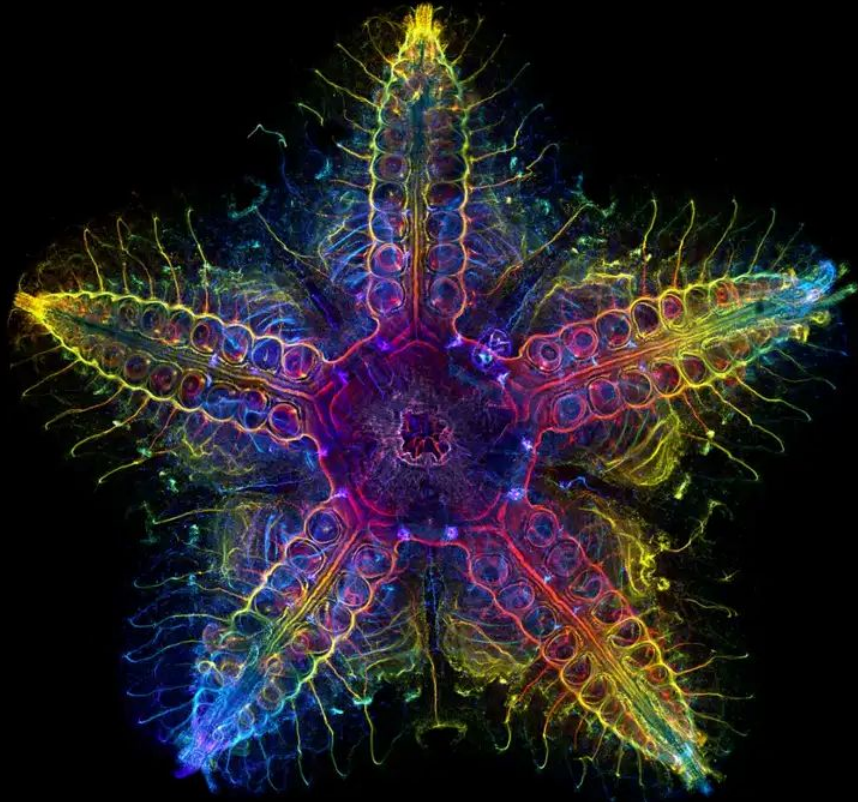




Harvard CS50

Full University Course

Cultura





DUELO MATEMÁTICO

Artículo

Article

A Quantitative Approach to the Watershed Governance Prism: The Duero River Basin, Mexico

Felipe Armas Vargas ¹, Oscar Escolero ², Samuel Sandoval Solis ³, Luzma Fabiola Nava ^{4,5,*}, Marisa Mazari Hiriart ⁶, Claudia Rojas Serna ¹ and Oliver López-Corona ⁷

¹ Departamento de Ingeniería de Procesos e Hidráulica, CBI, Universidad Autónoma Metropolitana-Iztapalapa, Ciudad de México 09340, Mexico

² Departamento de Dinámica Terrestre y Superficial, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad de México 09340, Mexico

³ Department of Land, Air and Water Resources, University of California Davis, Davis, CA 95616, USA

⁴ CONACyT—Departamento de Ingeniería Geomática e Hidráulica, División de Ingenierías, Campus Guanajuato, Universidad de Guanajuato, Guanajuato 38096, Mexico

⁵ International Institute for Applied Systems Analysis (IIASA), 2361 Laxenburg, Austria

⁶ Laboratorio Nacional de Ciencias de la Sostenibilidad, Instituto de Ecología, Universidad Nacional Autónoma de México, Ciudad de México 09340, Mexico

⁷ CONACyT—Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas (IIMAS), Universidad Nacional Autónoma de México, Ciudad de México 04510, Mexico

* Correspondence: lnava@conacyt.mx or nava@iiasa.ac.at

Abstract: Advances have been made in water resource investigation due to the implementation of mathematical models, the development of theoretical frameworks, and the evaluation of sustainability indices. Together, they improve and make integrated water resource management more efficient. In this paper, in the study area of the Duero River Basin, located in Michoacan, Mexico, we schematize a series of numerical indices of the Watershed Governance Prism to determine the quantitative status of water governance in a watershed. The results, presented as axes, perspectives, and prisms in the Axis Index, Water Governance Index, and Watershed Governance Prism Index, provide the conclusion that it is possible to establish and evaluate the Watershed Governance Prism Index using our numerical implementation of the Watershed Governance Prism theoretical framework. Thus, it is possible to define a quantitative status and evoke how water governance is being designed and implemented in a watershed.



Citation: Armas Vargas, F.; Escolero, O.; Sandoval Solis, S.; Nava, L.F.; Mazari Hiriart, M.; Rojas Serna, C.; López-Corona, O. A Quantitative Approach to the Watershed



ELSEVIER

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Groundwater for Sustainable Development

journal homepage: www.elsevier.com/locate/gsd



Relationships between urban aquifers and preserved areas south of Mexico City



Marcelo Canteiro^a, Selene Olea^b, Oscar Escolero^c, Luis Zambrano^{a,*}

^a Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, 04510 Ciudad de México, México

^b Posgrado en Ciencias de la Tierra, Instituto de Geología, Universidad Nacional Autónoma de México, Ciudad Universitaria, 04510 Ciudad de México, México

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ARTICLE INFO

Keywords:













Shallow aquifers
Pedregal
Infiltration
Recharge
Groundwater

ABSTRACT

Mexico City is an example of intense socio-ecosystem interactions, particularly in water management. The groundwater under this city has complex structures and dynamics due to the coexistence of aquifers located at different depths. Through groundwater extraction, the main aquifer supports 71% of the water demand of the city. In this research, we describe the dynamics between aquifers and the surface, particularly in preserved spaces located south of the city. The results indicate the presence of a shallow aquifer that is relatively independent to the main one. The water of both aquifers has the same origin (rainwater) and the same water flow direction, but it has different recharge areas and residence times. Apparently, there is a strong interaction between the shallow aquifer and the surface, in which the small proportion of preserved green spaces (27 km²), in relation to urbanized ones (53 km²), may produce negative consequences on the quality and quantity of groundwater. The lack of knowledge about the dynamics of the shallow aquifer leads to its underappreciation for the water management of the city.

REVIEW

Effective conservation of subterranean-roosting bats

Melissa B. Meierhofer¹  | Joseph S. Johnson²  | Janette Perez-Jimenez³  |
Fernanda Ito^{1,4}  | Paul W. Webala⁵  | Sigit Wiantoro⁶  | Enrico Bernard⁴  |
Krizler C. Tanalgo⁷  | Alice Hughes^{8,9}  | Pedro Cardoso¹⁰  | Thomas Lilley¹  |
Stefano Mammola^{10,11,12} 

¹BatLab Finland, Finnish Museum of Natural History (LUOMUS), University of Helsinki, Helsinki, Finland (Email: fernanda.santos@helsinki.fi; thomas.lilley@helsinki.fi)

²School of Information Technology, University of Cincinnati, Cincinnati, Ohio, USA (Email: john5jp@ucmail.uc.edu)

³Biology Department, University of Cincinnati, Cincinnati, Ohio, USA (Email: jp195121@ohio.edu)

⁴Laboratório de Ciência Aplicada à Conservação da Biodiversidade, Universidade Federal de Pernambuco, Recife, Brazil (Email: enrico.bernard@ufpe.br)

⁵Department of Forestry and Wildlife Management, Maasai Mara University, Narok, Kenya (Email: pwebala@mmarau.ac.ke)

⁶Museum Zoologicum Bogoriense, Research Center for Biosystematics & Evolution, National Research and Innovation Agency, Bogor, Indonesia (Email: wiantoro@gmail.com)

⁷Ecology and Conservation Research Laboratory (Eco/Con Lab), Department of Biological Sciences, College of Science and Mathematics, University of Southern Mindanao, Cotabato,

Convergent geographic patterns between grizzly bear population genetic structure and Indigenous language groups in coastal British Columbia, Canada

[Lauren H. Henson](#)^{1,2}, [Niko Balkenhol](#)³, [Robert Gustas](#)⁴, [Megan Adams](#)^{2,5}, [Jennifer Walkus](#)⁶, [William G. Housty](#)⁷, [Astrid V. Stronen](#)^{8,9}, [Jason Moody](#)¹⁰, [Christina Service](#)^{2,11}, [Donald Reece](#)¹², [Bridgett M. vonHoldt](#)¹³, [Iain McKechnie](#)^{4,14}, [Ben F. Koop](#)¹⁵ and [Chris T. Darimont](#)^{1,2}

ABSTRACT. Landscape genetic analyses of wildlife populations can exclude variation in a broad suite of potential spatiotemporal correlates, including consideration of how such variation might have similarly influenced people over time. Grizzly bear (*Ursus arctos*) populations in what is now known as coastal British Columbia, Canada, provide an opportunity to examine the possible effects of a complex set of landscape and human influences on genetic structure. In this collaboration among the Nuxalk, Hałtzaq, Kitasoo/Xai'xais, Gitga'at, and Wuikinuxv First Nations and conservation scientists, we characterized patterns of genetic differentiation in the grizzly bear, a species of high cultural value, by genotyping 22 microsatellite loci from noninvasively collected hair samples over a 23,500 km² area. We identified three well-differentiated groups. Resistance surfaces, which incorporated past and present human use, settlement, and landscape resistant features, could not explain this pattern of genetic variation. Notably, however, we detected spatial alignment between Indigenous language families and grizzly bear genetic groups. Grizzly bears sampled within an area represented by a given language family were significantly similar to those sampled within that language family ($P = 0.001$) and significantly divergent to those sampled outside the language family ($P = 0.001$). This spatial co-occurrence suggests that grizzly bear and human groups have been shaped by the landscape in similar ways, creating a convergence of grizzly bear genetic and human linguistic diversity. Additionally, grizzly bear management units designated by the provincial government currently divide an otherwise continuous group and exclude recently colonized island populations that are genetically continuous with adjacent mainland groups. This work provides not only insight into how ecological and geographic conditions can similarly shape the distribution of people and wildlife but also new genetic evidence to support renewed, locally led management of grizzly bears into the future.

Key Words: *bicultural diversity; grizzly bear (Ursus arctos) population genetic structure; landscape genetics*

Videos

EL INSTITUTO DE GEOLOGÍA

INVITA AL **HOMENAJE** EN MEMORIA DEL

**DR. OSCAR
ESCOLERO**

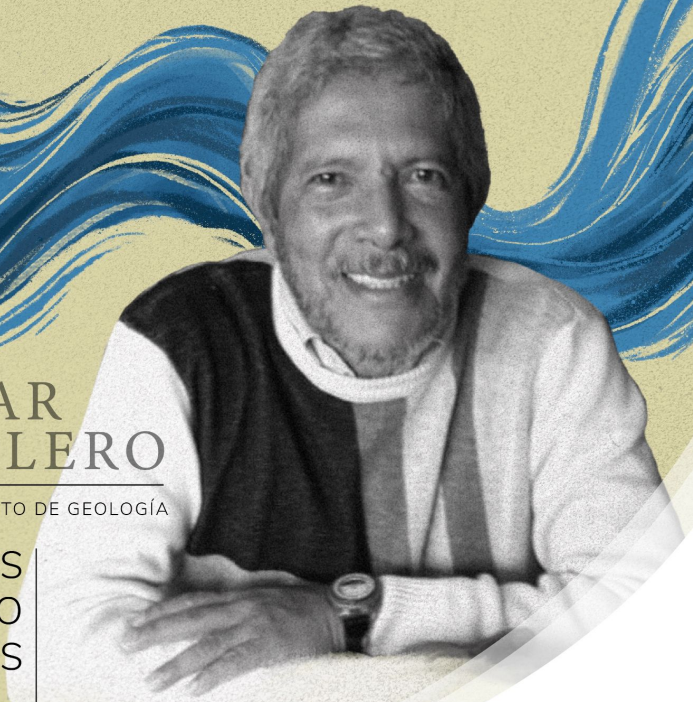
INVESTIGADOR DEL INSTITUTO DE GEOLOGÍA

**VIERNES
11 DE AGOSTO
16:00 HRS**



AUDITORIO TLAYOLOTL
DR. ISMAEL HERRERA REVILLA
UBICADO EN EL PATIO CONJUNTO
ENTRE LOS INSTITUTOS DE
GEOLOGÍA Y GEOFÍSICA

@InstitutoDeGeología



Do

Complex Numbers

Exist?

$$\sqrt{-1}$$



 NAT GEO
WILD



Libros

LAS “LAGUNAS DE MONTEBELLO”

Joyas de la naturaleza amenazadas

Javier Alcocer, Óscar Escolero y Fernando Álvarez

EDITORES



"It took me over forty years to learn from experience what can be learned in one hour from this guide."—Carl Djerassi

A PhD IS NOT ENOUGH!

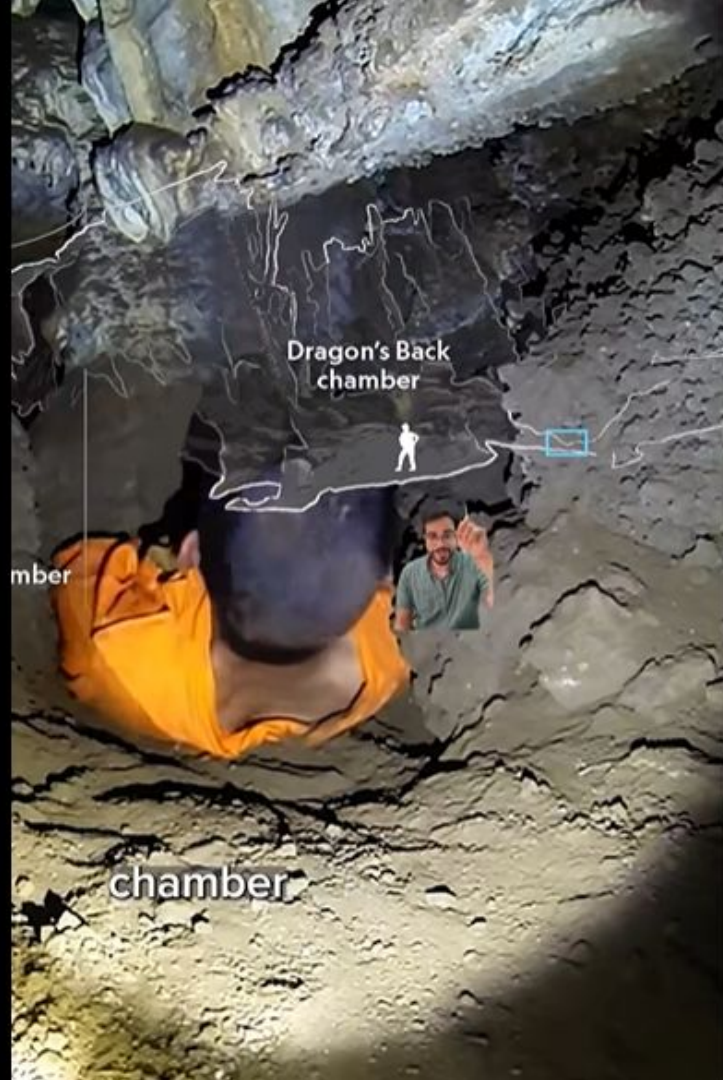
*A Guide to Survival
in Science*



REVISED
EDITION

PETER J. FEIBELMAN

Notas

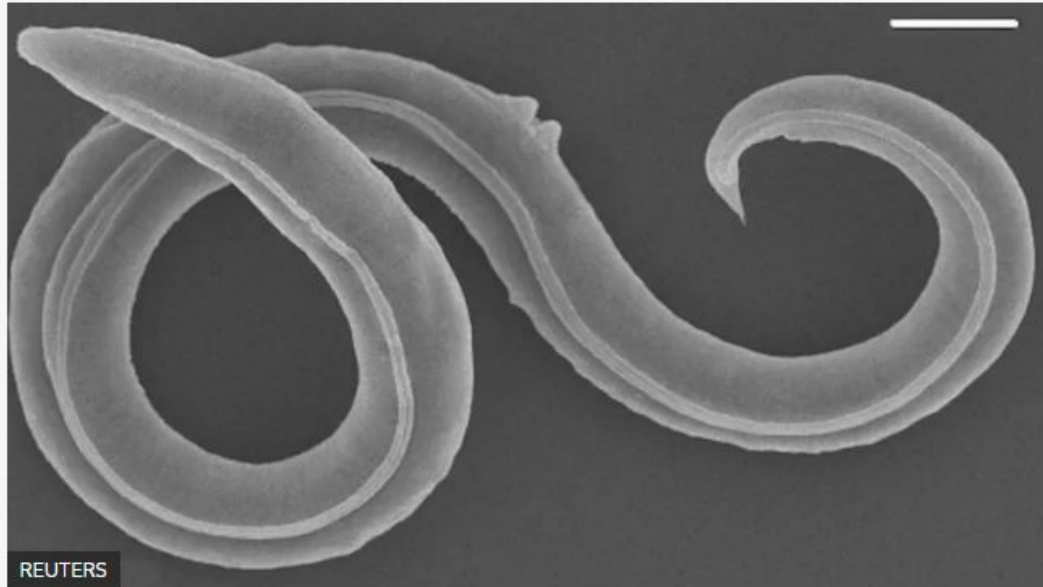


Dragon's Back
chamber

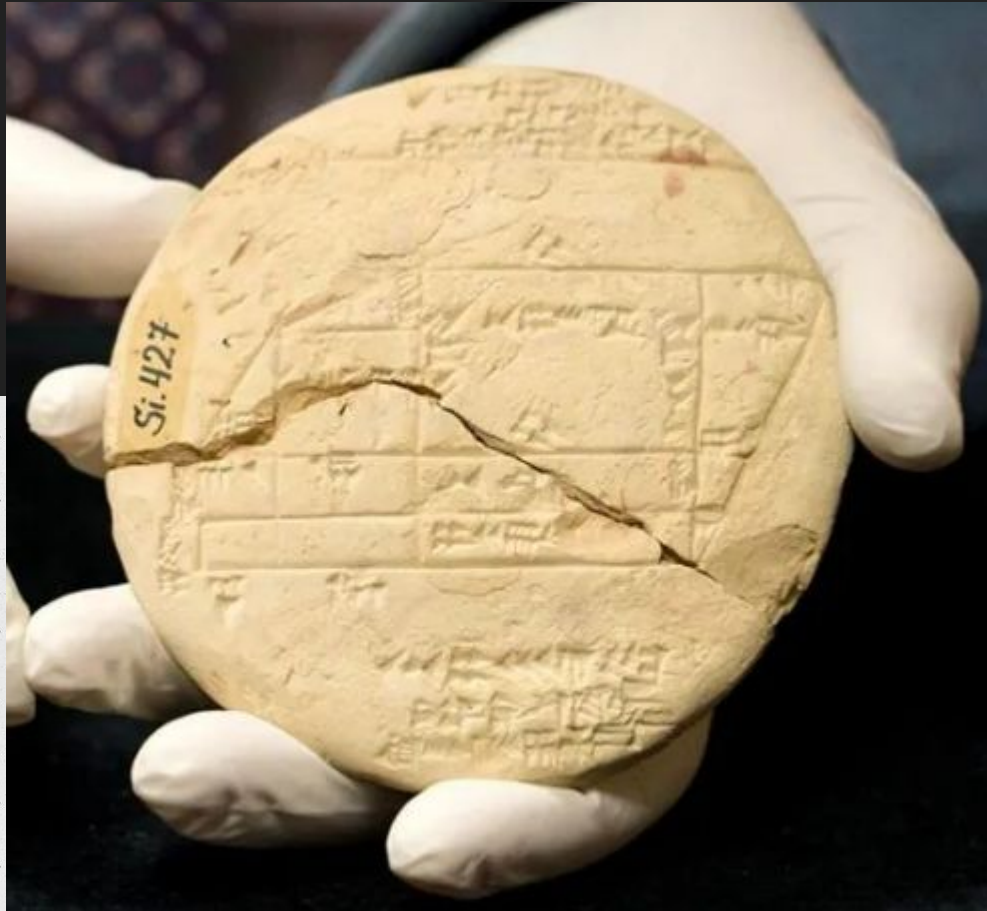
mber

chamber

Los gusanos que revivieron después de estar congelados 46.000 años



Geometría babilónica





David Jaramillo



NATURE.COM

Threatened Mexican oasis loses its main researcher and protector — will it survive?

SCIENCE NEWS



***SUPERCONDUCTOR
LK99 UPDATE***