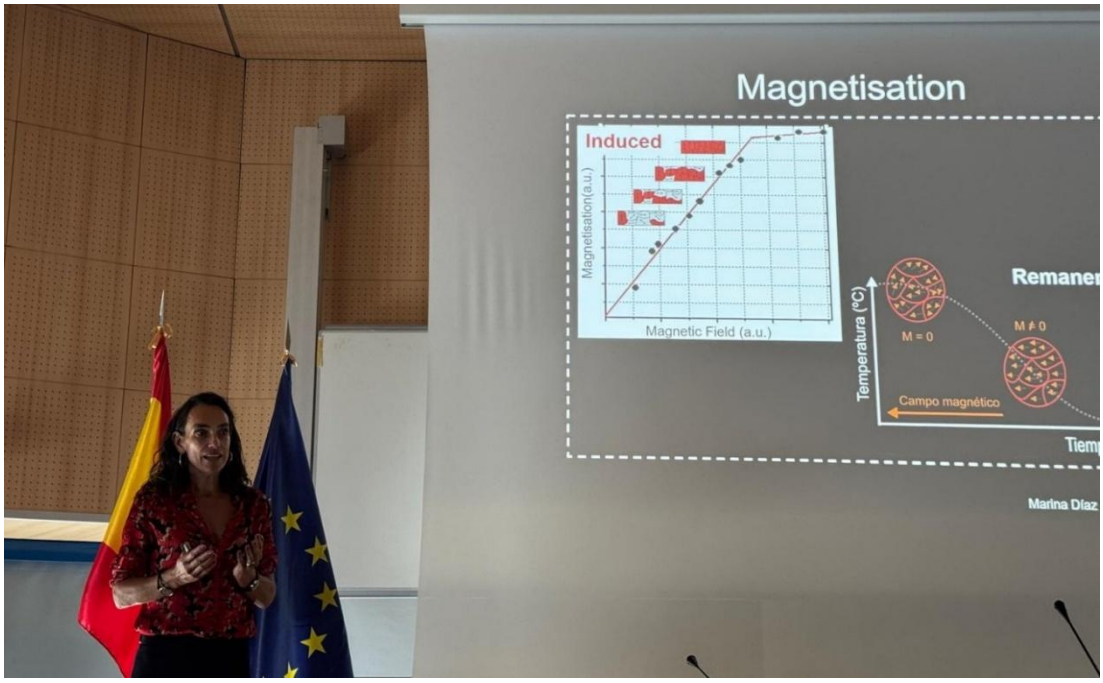
Nota de prensa

El magnetismo espacial: clave en la exploración planetaria

El CAB acoge un seminario sobre el papel del magnetismo espacial en la exploración planetaria

03'junio.'25.- El pasado viernes tuvo lugar en el **Centro de Astrobiología** (**CAB, INTA-CSIC**), un seminario especializado del **Área de Magnetismo Espacial**, con la intervención de **Marina Díaz Michelena**, investigadora del **Instituto Nacional de Técnica Aeroespacial** (**INTA**). Durante su presentación, se abordó la relevancia de las investigaciones magnéticas en la comprensión de fenómenos clave en la evolución del Sistema Solar.

La ponente explicó cómo el estudio del magnetismo planetario aporta valor añadido a preguntas aún sin resolver, como la formación y evolución de las cortezas planetarias o el origen de las lunas. Estas cuestiones son objeto de estudio de instrumentos como **AMR** —a bordo de la misión ***ExoMars* 2022**— y **NEWTON**, ambos desarrollados desde su concepción en el Área de Magnetismo Espacial del **INTA**.



Uno de los puntos más innovadores del seminario fue la presentación de la tecnología ***Touch and Play***, actualmente en desarrollo en el **INTA**, que promete superar algunos de los retos tecnológicos de las futuras misiones a las lunas de los gigantes gaseosos.

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Asimismo, se destacó la capacidad del Área para caracterizar y modelar las propiedades magnéticas de equipos y sistemas, gracias a la instalación singular **K-11** (recientemente acreditada con el sello **ENAC / ILAC**). Esta acreditación convierte al **K-11** en la primera instalación en Europa con este reconocimiento en su ámbito, consolidando su papel como referente en el estudio del magnetismo espacial.

Este seminario refuerza el compromiso del **CAB** con la investigación de vanguardia en astrobiología y exploración espacial y pone de relieve el papel clave del magnetismo como herramienta para desentrañar los misterios del cosmos.

Last Friday, a specialized seminar of the Space Magnetism Area was held at the **Center for Astrobiology** (**CAB**, **INTA-CSIC)**, featuring a keynote presentation by Marina Díaz Michelena, a researcher from the **National Institute of Aerospace Technology** (**INTA**). During her talk, she addressed the importance of magnetic research in understanding key phenomena in the evolution of the Solar System.

The speaker explained how the study of planetary magnetism adds value to unresolved questions, such as the formation and evolution of planetary crusts or the origin of moons. These topics are the focus of instruments like **AMR** —onboard the **ExoMars 2022** mission— and **NEWTON**, both developed from their inception within the Space Magnetism Area.

One of the most innovative aspects of the seminar was the presentation of the **Touch and Play** technology, currently under development at **INTA**, which aims to overcome some of the technological challenges of future missions to the moons of the gas giants.

The seminar also highlighted the Area's capabilities in characterizing and modeling the magnetic properties of equipment and systems, thanks to the unique **K-11** facility, which was recently accredited with the **ENAC / ILAC** seal. This accreditation makes **K-11** the first facility in Europe to receive such recognition in its field, reinforcing its role as a benchmark in space magnetism research.

This seminar underscores CAB's commitment to cutting-edge research in astrobiology and space exploration and emphasizes the key role of magnetism as a tool to unlock the mysteries of the cosmos.

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MORE INFORMATION:

CAB SEMINAR: Space magnetism activities for planetary exploration

Craters are typical features on the surface of planets. Their origin is diverse and comprises the impact of meteorites, explosive volcanism, sink holes, etc. —all of them surface reshaping mechanisms— that can be related in greater or lesser extent to the geodynamics of the bodies. Among the different processes, high energy cratering often implies a notable modification of the magnetization state of the rocks, which is recorded by their magnetic bearings. Later, the evolution in the different atmospheres might also change the magnetic properties of the minerals [1, 2]. Therefore, the magnetic investigations can be used to understand environmental features at the time, when the event occurred, as well as those that followed the formation event [3].

On Earth, volcanoes are continuously monitored both by remote sensing and in situ with parametric nets of sensors that permit their study along all their phases [4]. There are also several techniques devoted to the identification and study of impact craters. However, these techniques, mostly the ones that imply in situ and multiparametric measurements are not feasible in the planetary exploration context.

One would expect that the upcoming era of exploration of Mars and the Moon would permit the establishment of nets of stations by the study features, as well as high-resolution measurements with remote sensing platforms flying at low altitudes (10 – 100 m) like helicopters [5] or balloons.

This work presents the technology developed at **INTA** Space Magnetism Area and several studies performed in terrestrial analogues that mimic those expected in the planetary exploration context.

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