Super strong magnetic field solar container

What is the strongest magnetic field on the Sun?
Here we report clear evidence of the magnetic field of 6250 G,which is the strongest field among Stokes I profiles with clear Zeeman splitting ever observed on the Sun. The field was almost parallel to the solar surface and located in a bright region sandwiched by two opposite-polarity umbrae.

Which structure has a strong magnetic field?
Sunspotsare the most notable structure on the solar surface with strong magnetic fields. The field is generally strongest in a dark area (umbra),but sometimes stronger fields are found in non-dark regions,such as a penumbra and a light bridge. The formation mechanism of such strong fields outside umbrae is still puzzling.

What is the strongest magnetic field outside the umbrae?
The formation mechanism of such strong fields outside umbrae is still puzzling. Here we report clear evidence of the magnetic field of 6250 G,which is the strongest field among Stokes I profiles with clear Zeeman splitting ever observed on the Sun.

Why do we need a better understanding of the Sun's magnetic field?
A better understanding of the Sun's magnetic field and its behavior will allow us to make better predictions of space weather. Observations of magnetic fields associated with solar flares show that flares are likely to occur when the magnetic field lines linking two sunspots become sheared or twisted.

How does a solar magnetic field work?
This field is carried outward into interplanetary space from the sun by the solar wind,giving a solar magnetic field configuration (sketched in a plane perpendicular to the ecliptic plane in the upper panel of Fig. 3) which is like a dipole near the sun,but is highly stretched away from the sun.

Why is magnetism the key to understanding the Sun?
Magnetism is the key to understanding the Sun. Magnetic fields are produced in the Sun by the flow of electrically charged ions and electrons. Sunspots are places where very intense magnetic lines of force break through the Sun's surface. The sunspot cycle results from the recycling of magnetic fields by the flow of material in the interior.

In comparison to solar cycle 23, there is no substantial geomagnetic storm induced by CIR during the dwindling and subsiding phases of solar cycle 24. In the descending stage, the ...

A most intriguing case is the super-dense core of neutron stars, some of which also have super-strong magnetic fields, hence called magnetars. In this paper we review the current understanding of the ...

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In this work, we present the first electromagnetic field solver that is valid beyond the Schwinger limit. QED vacuum polarization in super-strong magnetic fields are modeled with nonlinear ...

33 Very strong magnetic fields up to 6100 G were reported in sunspots by Livingston et al. (2006). in super-strong solar magnetic fields was revived by works of Wa ese authors detected 5570 G and ...

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Understanding the properties of these magnetic fields is crucial for predicting and mitigating space weather events. In this study, the non-potential magnetic field parameters of active ...

In this study we present the old and new observational data concerning the problem of extreme magnetic fields (>= 5 kG) in the Sun"s atmosphere. We emphasize that the upper limit of the intensity ...

In particular, Maxwell"s equations become nonlinear in the strong-QED regime. Here we present the "QED plasma framework," which will allow one to systematically explore collective phenomena in a ...

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It encompasses multiple disciplines such as material science, planetary science, laboratory and astrophysical plasma science. For the latter, high energy density states can be accompanied by ...

In this study we present the old and new observational data concerning the problem of extreme magnetic fields (5 kG) in the Sun"s atmosphere. We emphasize that the upper limit of the intensity of ...

For comparison, he noted that neutron stars, the densest objects in the universe, have fields of about 10 14 gauss, while refrigerator magnets produce a field of about 100 gauss and our home planet"s ...

Spectral Manifestations of Strong and Especially Strong Magnetic Fields in the Active Prominence on July 24, 1999 I. YakovkinM. A. HromovV. Lozitsky Physics Kinematics and Physics of Celestial ...

etic field solver that is valid beyond the Schwinger limit. QED vacuum polarization in super-strong magnetic fields are modeled with nonlinear Maxwell equations. We show that electromagnetic waves ...

By analyzing the spatial and temporal distributions of these parameters, we aim to shed light on the

relationship between magnetic field properties and solar flare occurrence.

In this work, we present the first electromagnetic field solver that is valid beyond the Schwinger limit. QED vacuum polarization in super-strong magnetic fields are modeled with nonlinear Maxwell ...

As the quark pairs are all neutral with e the "rotated" electromagnetic field A eµ respect to the "rotated" electromagnetic charge Q, Super-Dense Matter at Super- Strong Magnetic Fields November 4, 2018 ...

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