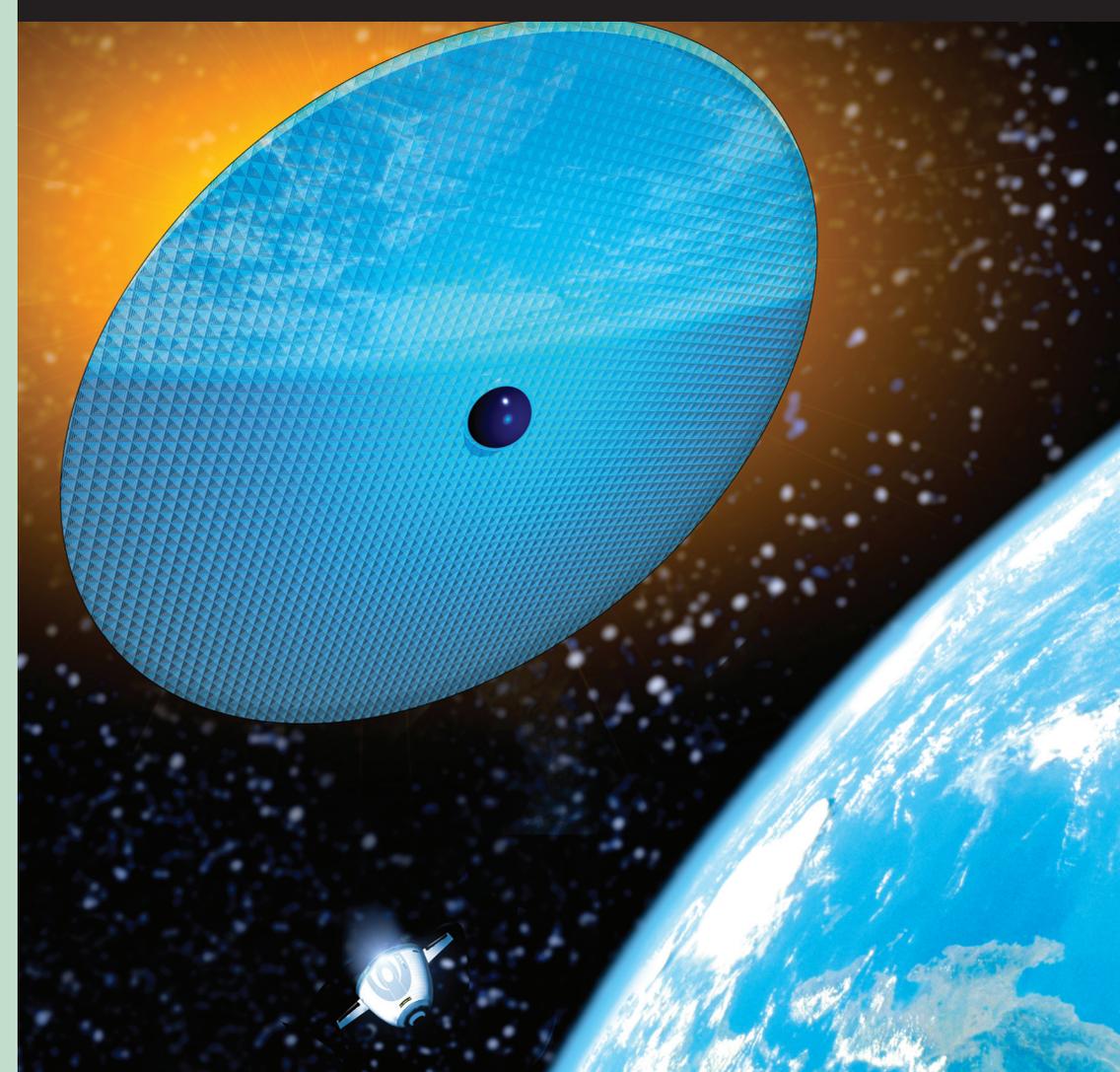


Geo-engineering: Challenges and global impacts

Invitation to attend a seminar organised by the Institute of Physics,
the Royal Society of Chemistry and The Royal Academy of Engineering
15 July 2009



Geo-engineering: Challenges and global impacts

Directions to the MacMillan Room, Portcullis House, the House of Commons

Given the restricted availability of parking in Westminster, we advise that attendees use public transportation. The entrance to Portcullis House is located on Victoria Embankment.

By tube

Take the Jubilee, Circle or District lines to Westminster Station, which is located directly under Portcullis House. Exit to Bridge Street and turn left immediately on leaving the station. Walk towards the river and take the first left onto Victoria Embankment. The entrance to Portcullis House will be on your left.

By bus

Both Parliament Street and Parliament Square are easily accessible by bus. Several bus routes (3, 11, 12, 24, 53, 77A, 88, 109, 159, 453 and X53) serve Parliament Square and Parliament Street.

By train

The nearest mainline railway stations are Charing Cross (approximately a 10-minute walk), Waterloo (approximately a 15-minute walk) and Victoria (approximately a 20-minute walk).

For further information please contact

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Tel:+44 (0)20 7440 3395 Fax:+44 (0)20 7734 1227 E-mail: sciencepolicy@rsc.org

Image: VICTOR HABBICK VISIONS/SCIENCE PHOTO LIBRARY
Climate engineering. Computer artwork of a large mirror (circular) in Earth orbit with a spacecraft (lower left). The mirror is designed to shield the Earth (lower right) from the Sun (behind mirror), in an attempt to control changes in the climate of the Earth. This proposed method is one of several that could be used to reduce the effects of manmade global warming (the process where the heat of the Sun is trapped by manmade changes in the composition of the Earth's atmosphere). Many such mirrors would be needed. It is not known for certain how climate change will progress, or how easy or dangerous it is to attempt to control the Earth's climate.

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2



Geo-engineering: Challenges and global impacts

Geo-engineering offers the potential to protect the Earth's ecosphere from the worst effects of climate change. This protection may only be temporary and, in some cases, mask the effects of anthropogenic greenhouse gas emissions rather than tackling the root cause. Nevertheless, with growing doubt as to the ability, or willingness, of world economies to meet the stringent cuts in emissions required, geo-engineering could become politically attractive to buy more time for those deep cuts to be made.

This seminar will discuss a number of imaginative technologies that have been suggested to modify the Earth's albedo or sequester atmospheric carbon dioxide, which could be sufficient to offset, in part, the effect of greenhouse gas emissions. These include dispersing sulphate aerosols into the stratosphere to mimic global dimming, using a swarm of pico-satellites in space to reflect sunlight, and ocean fertilisation to encourage the growth of marine microorganisms which can capture carbon dioxide. The seminar will explore whether these techniques will have any unintended consequences (e.g. releasing sulphate aerosols into the atmosphere may cause droughts), how they need to be developed and analysed for risk potential, and whether altering the Earth's climate system will ever be socially acceptable. The scale of the interventions required will also be of concern as well as the full life-cycle costs of proposals.

This seminar is the latest in a series demonstrating key routes by which contemporary physics, chemistry and engineering will affect life in the 21st century.

The Institute of Physics is a scientific charity devoted to increasing the practice, understanding and application of physics. It has a worldwide membership of over 36 000 and is a leading communicator of physics-related science to all audiences, from specialists through to government and the general public. Its publishing company, IOP Publishing, is a world leader in scientific publishing and the electronic dissemination of physics.

The Royal Society of Chemistry is the largest organisation in Europe for advancing the chemical sciences. Supported by a worldwide network of members and an international publishing business, our activities span education, conferences, science policy and the promotion of chemistry to the public.

The Royal Academy of Engineering is Britain's national academy for engineering, bringing together the country's most eminent engineers from all disciplines to promote excellence in the science, art and practice of engineering. Its strategic priorities are to enhance the UK's engineering capabilities, to celebrate excellence and inspire the next generation, and to lead debate by guiding informed thinking and influencing public policy.

The Institute of Physics, the Royal Society of Chemistry and The Royal Academy of Engineering invite you to attend a seminar entitled:

Geo-engineering: Challenges and global impacts

To be held at Portcullis House, the House of Commons

15 July 2009

Tea and coffee at 6:00pm.

The seminar will commence at 6.30pm and will be followed by refreshments at 8.15pm.

The speakers at the seminar will be:

Dr Alan Gadian, University of Leeds

Talk: Cloud albedo modification

Dr Dan Lunt, University of Bristol

Talk: Sunshade engineering

Prof. Steve Rayner, University of Oxford

Talk: Social and ethical implications of geo-engineering

To be confirmed

Talk: Ocean fertilisation

Chair

Dr Brian Iddon MP, the House of Commons

Please confirm your attendance at the earliest possible opportunity by returning the attached slip or by emailing sciencepolicy@rsc.org

As you will appreciate security at the House of Commons has been stepped up in recent years so please allow sufficient time for security clearance; previous delegates have been known to queue for up to 30 minutes.

If you require supplementary invitations for colleagues please contact Elizabeth Milsom by emailing sciencepolicy@rsc.org

IOP Institute of Physics | **RSC** Advancing the
Chemical Sciences



Geo-engineering:
Challenges and global impacts

Name: _____

Affiliation: _____

Address: _____

E-mail: _____

Yes, I am able to attend Geo-engineering: Challenges and global impacts seminar on 15 July 2009

Yes, I am staying for refreshments after the seminar

I would like a copy of the seminar report when published (please supply address)

Please enter your name, tick the appropriate boxes and return this card.