

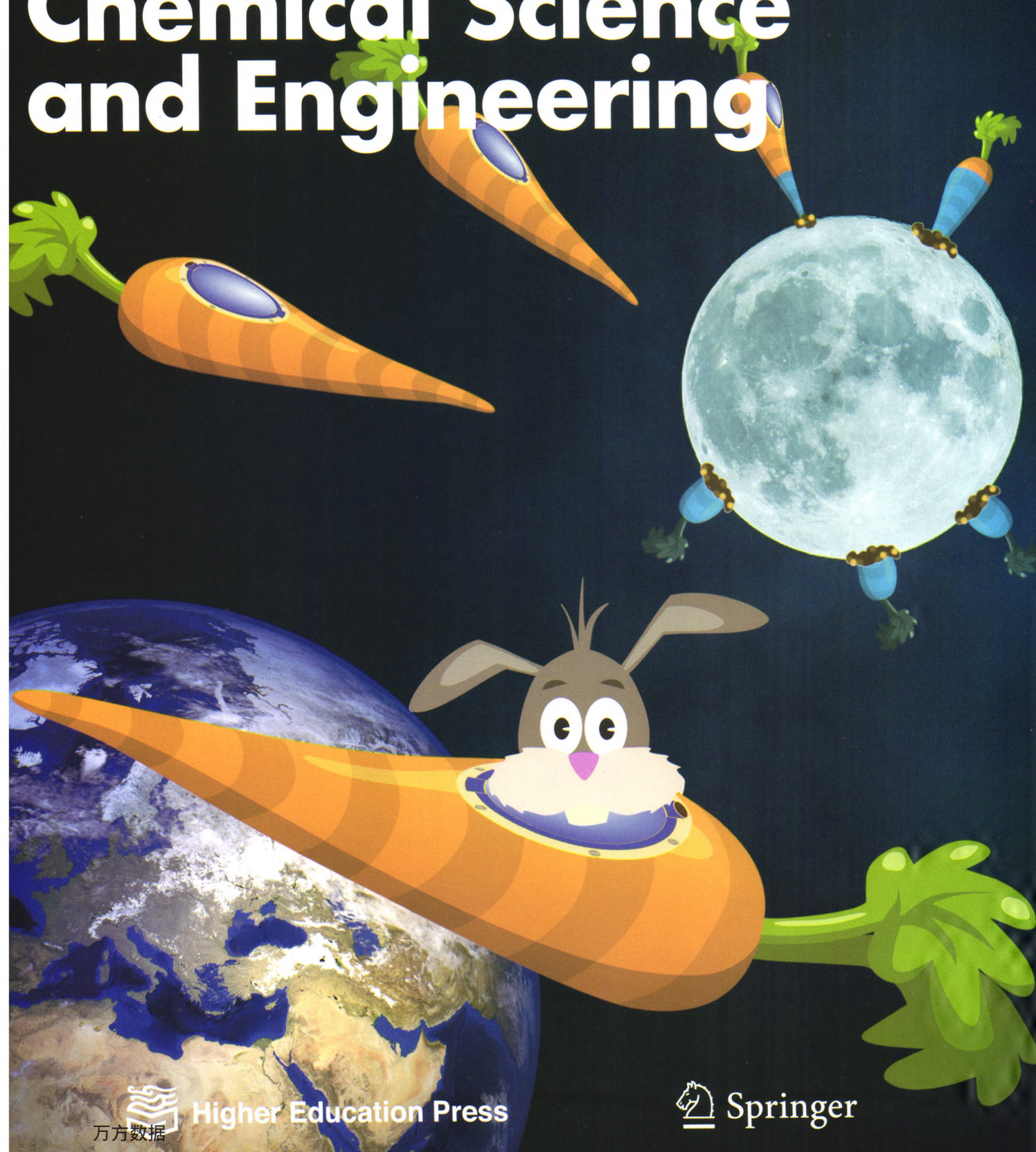


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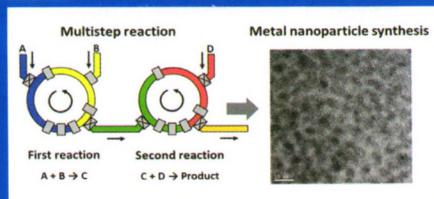


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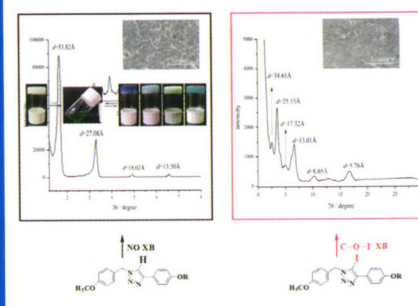
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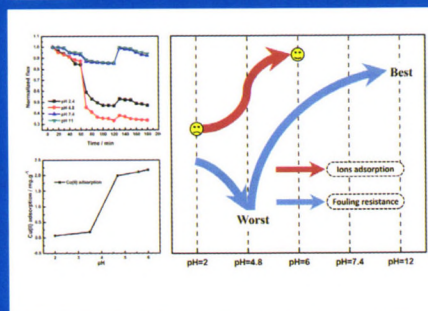
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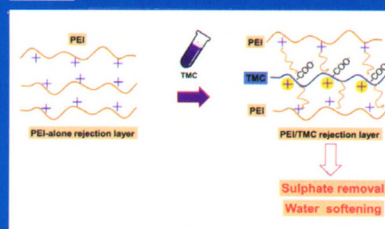
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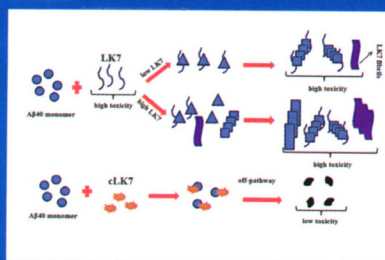
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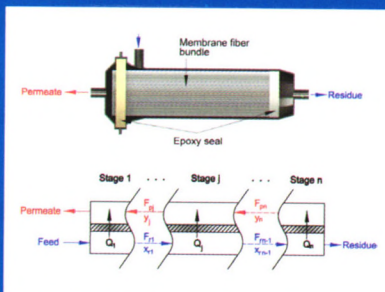
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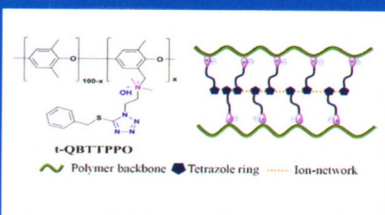
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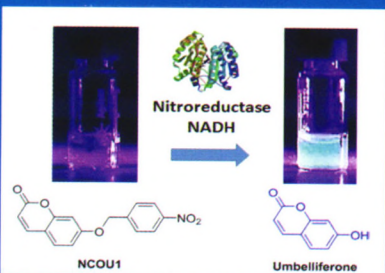
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Cover story

(Adam C. Sedgwick, Alex Hayden, Barry Hill, Steven D. Bull, Robert B. P. Elmes, Tony D. James, pp 311–314)

The cover shows carrot spacecraft piloted by rabbits.

Link between the picture and the science contained in the paper: Umbelliferone a coumarin fluorophore was used to prepare the sensor employed in this project and is found in carrots. When our sensor reacts with the nitroreductase (NTR) enzyme it releases the fluorescent blue umbelliferone molecule. Nitroreductase (NTR), is one of a series of biomarkers that have been shown to be significantly upregulated in cells under hypoxic stress. Hypoxia is a condition where cells are deprived of adequate oxygen.

The picture is set in space with the moon representing a cell under hypoxic stress. Therefore, the carrot spacecraft burrowing into the moon change from orange to blue representing the release of the fluorescent blue umbelliferone under hypoxic conditions. The Earth has normal oxygen levels and so no carrot spacecraft have targeted the earth. Importantly, even if they had targeted and burrowed into the Earth they would have remained orange due to the normal oxygen levels.

The concept for this cover was inspired by discussions between Tony D. James @chemosensors and Maria Weber @_mariaweber. All images were downloaded from Pixbay under a Creative Commons CC0 licence.



Tony D. James is a Professor at the University of Bath, Fellow of the Royal Society of Chemistry and holds a prestigious Royal Society Wolfson Research Merit Award (2017–2022). His research interests include many aspects of supramolecular chemistry, including: molecular recognition, fluorescence sensor design, fluorescence imaging, theranostics, chiral recognition, saccharide recognition, anion recognition and sensors for reactive oxygen species (ROS). In 2013 for his role in developing networks with Japan he was awarded a Daiwa-Adrian Prize, in 2015 he received the Inaugural CASE Prize for establishing and developing networks with China and in 2018 he received the MSMLG Czarnik Award.

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