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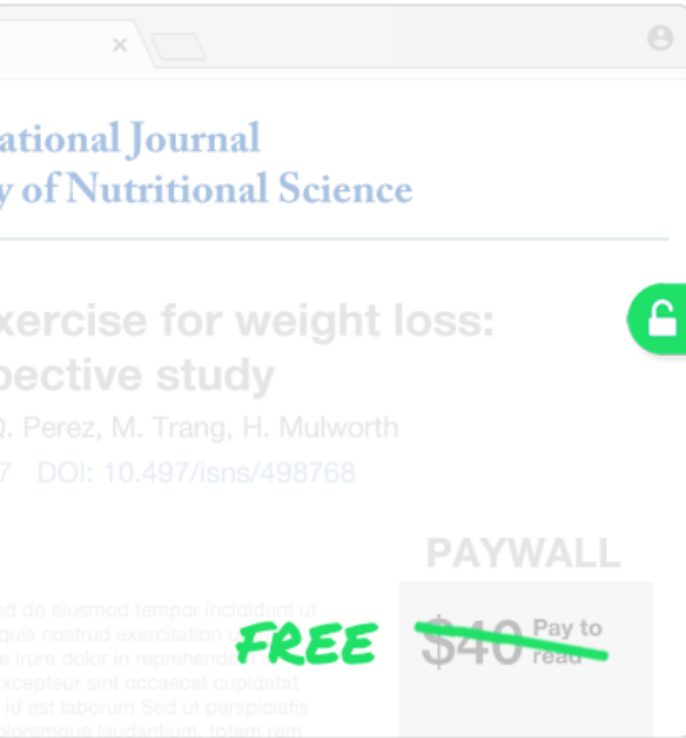
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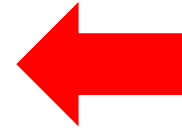




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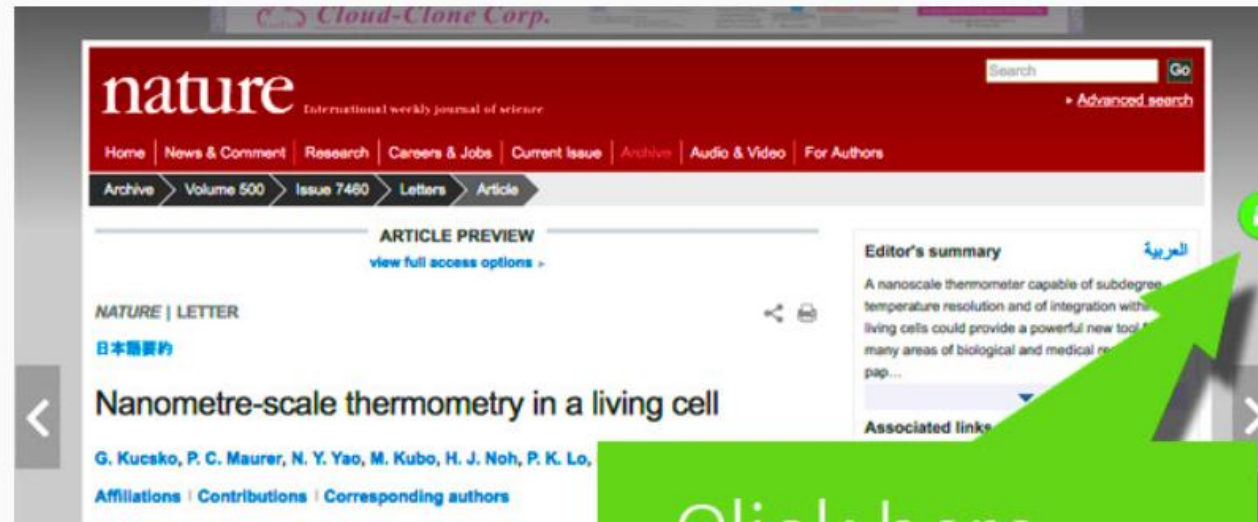
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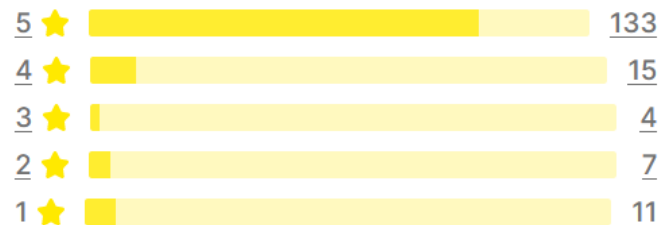
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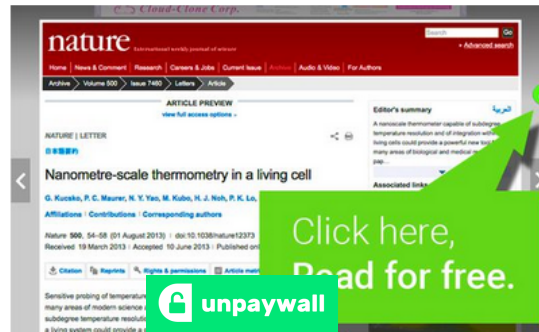
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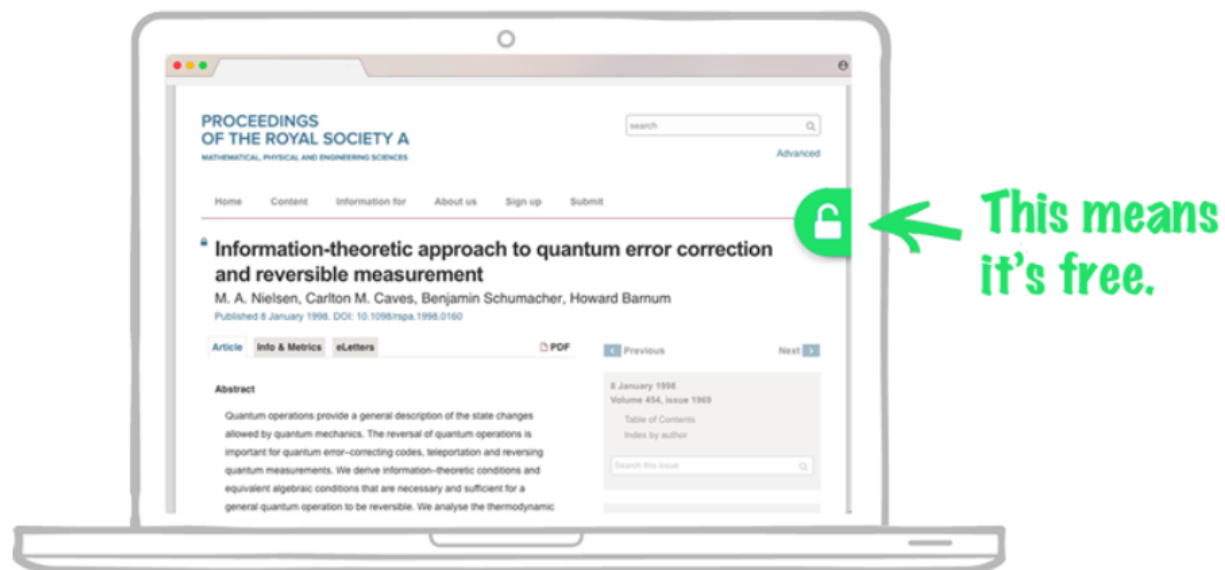


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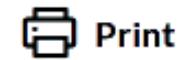
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Green



Bronze or Hybrid





Gold



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Published: 23 February 2017

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[Michaël Gillon](#) , [Amaury H. M. J. Triaud](#), ... [Didier Queloz](#)  Show authors

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One aim of modern astronomy is to detect temperate, Earth-like exoplanets that are well suited for atmospheric characterization. Recently, three Earth-sized planets were detected that transit (that is, pass in front of) a star with a mass just eight per cent that of the Sun, located 12 parsecs away<sup>1</sup>. The transiting configuration of these planets, combined with the Jupiter-like size of their host star—named TRAPPIST-1—makes possible in-depth studies of

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### Seven Earth-like planets around a nearby dwarf star

Michaël Gillon *et al.* report the results of a photometric monitoring campaign of the star TRAPPIST-1 from the ground and space. They reveal that at least seven planets with sizes and masses similar to Earth revolve around this Jupiter-sized star. These planets all have equilibrium temperatures low enough to make it possible for liquid water to exist on their

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Research Article | Published: 04 September 2021

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[Jie Zhao](#) & [Kelín Wang](#) [Soil Ecology Letters](#) 4, 429–434 (2022) | [Cite this article](#)265 Accesses | 4 Citations | 1 Altmetric | [Metrics](#)

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Soil nematodes are useful ecological indicators and can be extracted from soil by a variety of techniques. Because the extracted nematode samples (suspensions) can be quite turbid (i.e., they contain soil particles and organic particles in addition to nematodes), quantitative and taxonomic analyses of the nematodes by microscopy can be difficult. In this study, the following three methods for cleaning turbid suspensions obtained from Baermann funnels were assessed: repeated centrifugation at  $692.5 \times g$  for 1 min, repeated settling at low-temperature ( $4^{\circ}\text{C}$ ) for 24 h, and a combination of low-temperature settling and centrifugation. Nematodes were extracted with Baermann funnels from soil samples collected from four land-use types (since land-use type can affect the turbidity of nematode suspensions), and the resulting suspensions were cleaned by the three methods before nematode abundance was

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# Drimane-Type Sesquiterpenoids Derived from the Tropical Basidiomycetes *Perenniporia centrali-africana* and *Cerrena* sp. nov

by Paomephan Pathompong <sup>1,2,†</sup>, Sebastian Pfütze <sup>2,3,†</sup>, Frank Surup <sup>2,3</sup> , Thitiya Boonpratuang <sup>4</sup> , Rattaket Choeyklin <sup>4,5</sup>, Josphat C. Matasyoh <sup>6</sup>, Cony Decock <sup>7</sup>, Marc Stadler <sup>2,3,\*</sup> and Chuenchit Boonchird <sup>1,\*</sup>

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<sup>6</sup> Department of Chemistry, Egerton University, P.O. Box 536, Njoro 20115, Kenya

<sup>7</sup> Earth and Life Institute, Mycothèque de l' Université Catholique de Louvain (BCCM/MUCL), Place Croix du Sud 3, B-1348 Louvain-la-Neuve, Belgium

\* Authors to whom correspondence should be addressed.

† These authors contributed equally to this work.

Academic Editors: Bruno Botta, Cinzia Ingallina, Andrea Calcaterra and Deborah Quaglio

*Molecules* **2022**, *27*(18), 5968; <https://doi.org/10.3390/molecules27185968>

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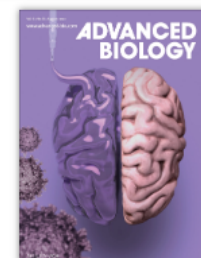
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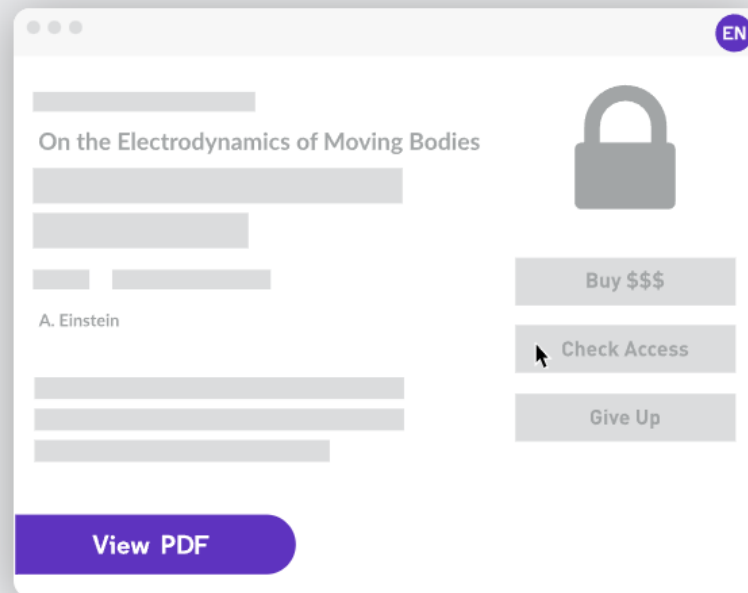
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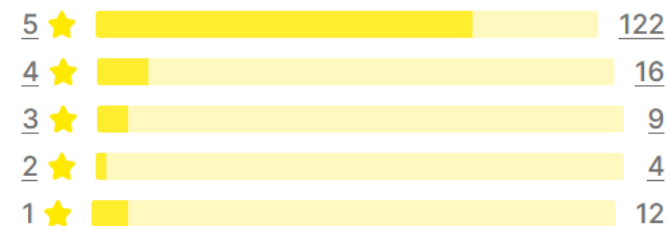
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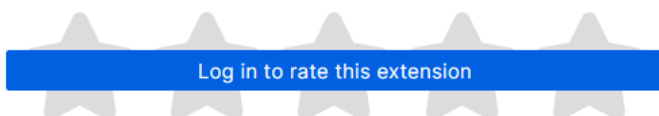
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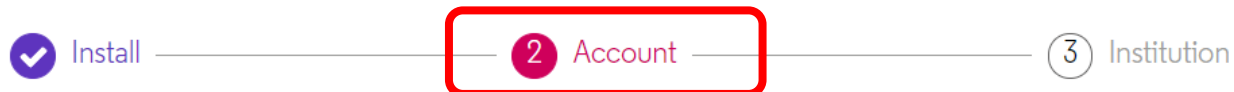
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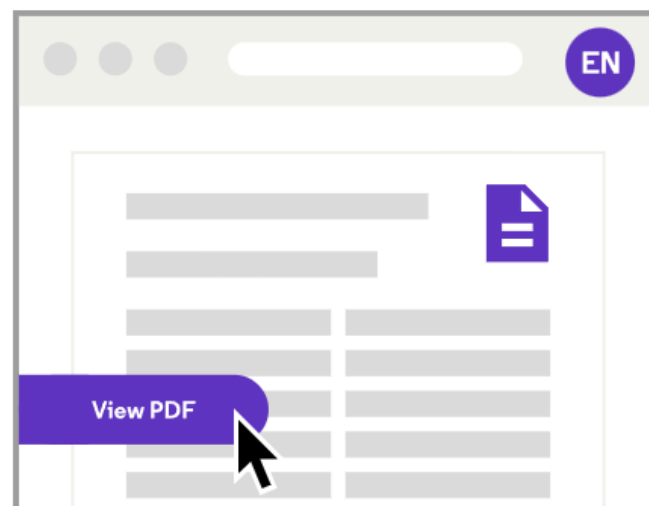
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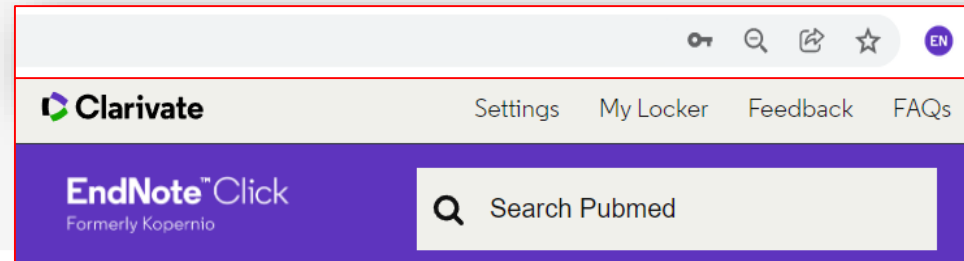
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## Exploring presentations of sustainability by US synthetic biology companies

James Karabin <sup>1 2</sup>, Isaac Mansfield <sup>3 4</sup>, Emma K Frow <sup>3 5</sup>

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The field of synthetic biology is increasingly being positioned as a key driver of a more sustainable, bio-based economy. In the past 15 years, the field has grown from a niche area of research to a major force in biotechnology. In this paper we undertake an exploratory analysis of the sustainability and synthetic biology, identifying the key themes and trends in the presentation of sustainability on the public websites of 24, US-based synthetic biology companies. The analysis shows that sustainability is a visible part of the self-identity of these companies, with 18 of the 24 companies mentioning it. The analysis also shows that sustainability is emphasized in a variety of ways, with little explicit mention of social dimensions or intergenerational equity. Furthermore, the model of sustainability presented focuses on incremental transition towards environmental

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Exploring presentations of sustainability by  
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James Karabin<sup>1,2</sup>, Izaak Mansfield<sup>3,4</sup>, Emma K. Frow<sup>3,5\*</sup>

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The field of synthetic biology is increasingly being positioned as a key driver of a more sustainable, bio-based economy, and has seen rapid industry growth over the past 15 years. In this paper we undertake an exploratory investigation of the relationship between sustainability and synthetic biology, identifying and analyzing sustainability-related language on the public websites of 24, US-based synthetic biology companies. We observe that sustainability is a visible part of the self-presentation of the nascent synthetic biology industry, explicitly mentioned by 18 of the 24 companies. The dominant framing of sustainability on these company websites emphasizes environmental gains and “free-market” approaches to sustainability, with little explicit mention of social dimensions of sustainability such as access, justice or intergenerational equity. Furthermore, the model of sustainability presented focuses on incremental transition towards environmental sustainability through direct substitution of products and processes using bioengineered alternatives ( $n = 16$  companies), with no change in societal consumption or policy frameworks required in order to see sustainability gains. One-third of the companies analyzed ( $n = 8$ ) mention “nature” on their websites, variously framing it as a resource to be managed or as a source of inspiration; whether the


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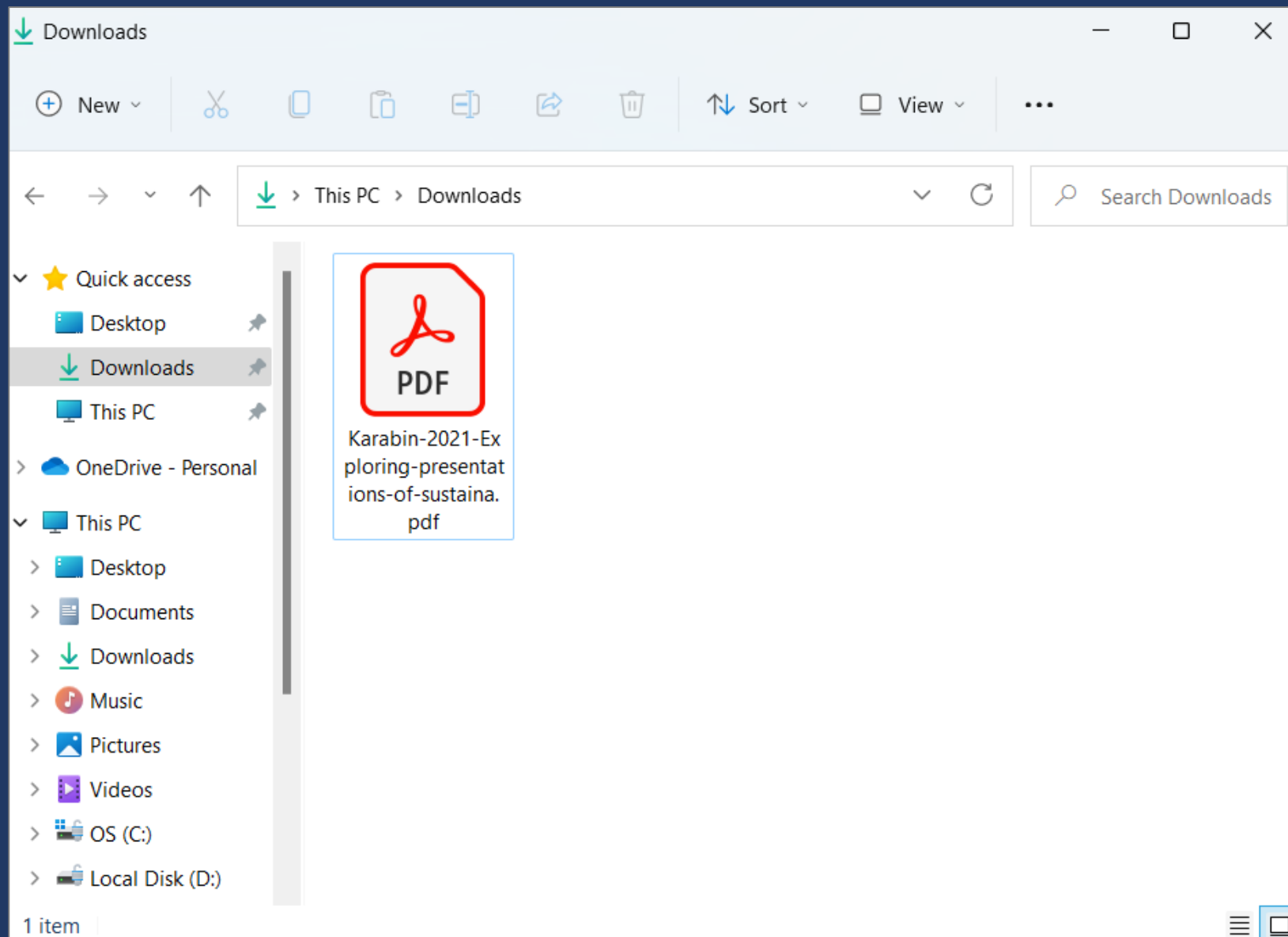
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## Exploring presentations of US synthetic biology companies

James Karabin<sup>1,2</sup>, Isaac Mansfield<sup>3,4</sup>, Emma K. Frow<sup>5</sup>

<sup>1</sup> School of Life Sciences, Arizona State University, Tempe, Arizona, <sup>2</sup> School of Social and Family Dynamics, Arizona State University, <sup>3</sup> School for the Future of Innovation in Society, Arizona State University, <sup>4</sup> W.P. Carey School of Business, Arizona State University, <sup>5</sup> School of Biological & Health Systems Engineering, Arizona State University

\* emma.frow@asu.edu

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### Abstract

The field of synthetic biology is increasingly being seen as a sustainable, bio-based economy, and has seen rapid growth in public awareness. In this paper we undertake an exploratory investigation of synthetic biology, identifying and analyzing public websites of 24, US-based synthetic biology companies. It is a visible part of the self-presentation of the companies mentioned by 18 of the 24 companies. The dominant themes emphasize environmental gains and sustainability, with little explicit mention of social dimensions.

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## Exploring presentations of sustainability by US synthetic biology companies

James Karabin, Izaac Mansfield, Emma K. Frow

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Abstract

The field of synthetic biology is increasingly being positioned as a key driver of a more sustainable, bio-based economy, and has seen rapid industry growth over the past 15 years. In this paper we undertake an exploratory investigation of the relationship between sustainability and synthetic biology, identifying and analyzing sustainability-related language on the public websites of 24, US-based synthetic biology companies. We observe that sustainability is a visible part of the self-presentation of the nascent synthetic biology industry, explicitly mentioned by 18 of the 24 companies. The dominant framing of sustainability on these company websites emphasizes environmental gains and "free-market" approaches to sustainability, with little explicit mention of social dimensions of sustainability such as access, justice or intergenerational equity. Furthermore, the model of sustainability presented focuses on incremental transition towards environmental sustainability through direct substitution of products and processes using bioengineered alternatives ( $n = 16$  companies), with no change in societal consumption or policy frameworks required in order to see sustainability gains. One-third of the companies analyzed ( $n = 8$ ) mention "nature" on their websites, variously framing it

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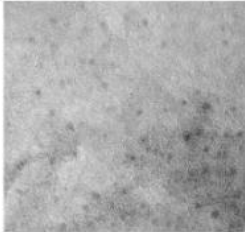
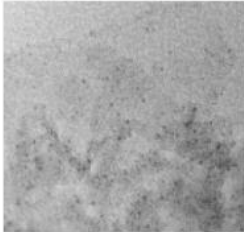
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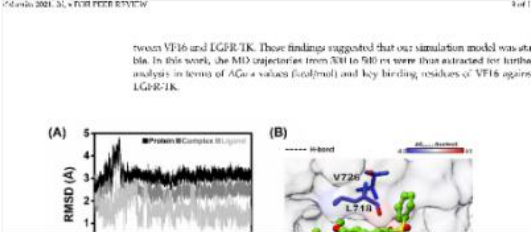
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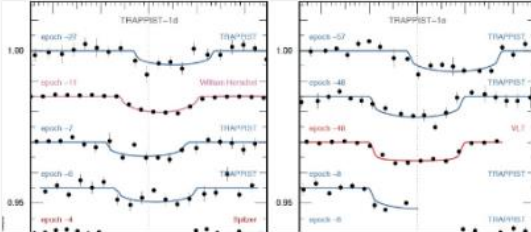
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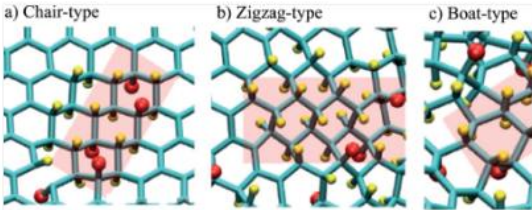


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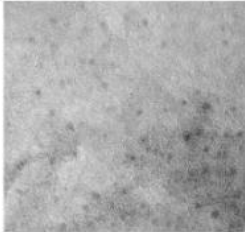
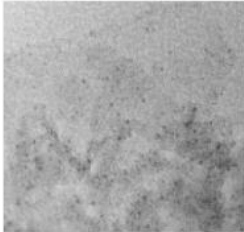
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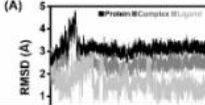
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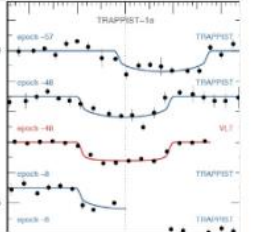
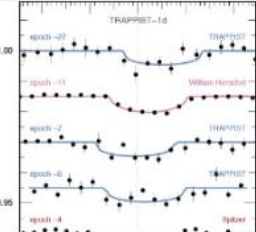
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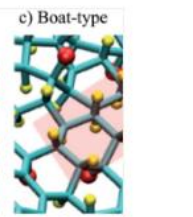
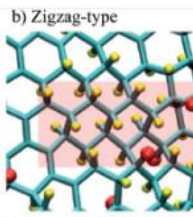
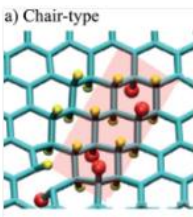
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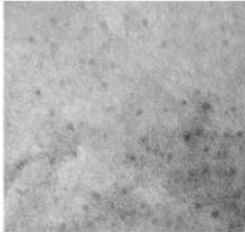
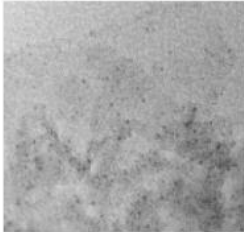
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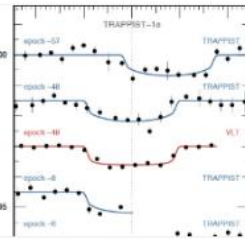
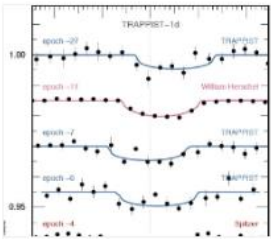
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