# Article information:

Strong metal-support interaction promoted scalable production of thermally stable single-atom catalysts | Nature Communications
<https://www.nature.com/articles/s41467-020-14984-9>

# Article summary:

1. Single-atom catalysts (SACs) have been developed as a means to maximize precious metal utilization and generate well-defined, uniform active sites.

2. Various strategies have been developed for the fabrication of SACs, but large-scale synthesis of thermally stable SACs remains problematic.

3. A simple route has been developed to prepare thermally stable Ru SACs directly from commercial RuO2 powders by heating of physical mixtures of RuO2 and strongly interacting supports.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable and trustworthy in its reporting on the development of a simple route to prepare thermally stable Ru SACs directly from commercial RuO2 powders by heating of physical mixtures of RuO2 and strongly interacting supports. The article provides evidence for its claims through XRD patterns, HAADF-STEM images, and other methods described in the “Methods” section. It also provides an overview of previous strategies used for the fabrication of SACs, which helps to contextualize the new approach presented in the article.

The article does not appear to be biased or one-sided in its reporting; it presents both sides equally by providing an overview of previous strategies used for the fabrication of SACs as well as discussing potential environmental challenges associated with some approaches. It also acknowledges possible risks associated with this new approach, such as sintering at lower temperatures, which is addressed in detail in Supplementary Fig 4.

The only potential issue with this article is that it does not explore any counterarguments or alternative approaches that could be used for large-scale production of thermally stable SACs. However, given that this is a research paper focused on presenting a new approach rather than exploring all possible alternatives, this omission can be forgiven.

# Topics for further research:

* Large-scale production of SACs
* Alternative approaches for SAC fabrication
* Environmental challenges associated with SACs
* Sintering temperature optimization
* RuO2 powder synthesis
* HAADF-STEM imaging techniques

# Report location:

<https://www.fullpicture.app/item/6a809c8ccf6207b1b354286442d240c7>